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PAGES



INSIDE HISTORY COLLECTION

The Black Death

PLAGUE
KILLED
35 MILLION
PEOPLE

AD 1347
The plague
arrived in Europe
as a stowaway

**Judgement Day
drew near**

Famine, earthquakes
and war were seen as
God's punishment

**Farewell to
the darkness**

After the plague,
science, culture and
the arts flourished



MEDIEVAL SUPERPOWER

The Catholic Church
ruled over all

MACABRE ARTWORKS

Plague depicted by dancing
skeletons and deadly arrows



THE HUNT FOR A CURE

Dead cockerels were
one suggested remedy





THE BLACK DEATH LED TO A NEW EUROPE

In the south of France in late 1348, the monk Gherardo found himself all alone in the monastery that he had shared the previous year with his prior and 34 friars. As in most monasteries, the monks observed the rule of caring for the sick and dying. They were therefore particularly vulnerable to the contagious plague that arrived in Europe on board Italian merchant ships in 1347. Just before the plague struck, Europe had a population of around 75 million. Five years later, almost half

were dead. Monasteries and villages lay deserted, fields abandoned and labour was scarce. But in some places, like the rich Italian city states, the plague was followed by a boom; suddenly there was enough food for everyone, and the labour shortage delivered both higher wages and technological advances. And after witnessing the Church's helplessness in the face of the Black Death, people were freed from the yoke of religion. Instead, new ideas blossomed where man – not God – stood at the centre.

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THE BLACK DEATH

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1315-22 // Famine strikes Europe



1338-46 // Flea-borne plague spreads from China



1347 // Italian merchants bring the plague to Europe



1347 // The plague reaches Italy's coastal towns



1348 // Doctors 'cure'

1315-1348

HUNGER WEAKENS EUROPE

1315 The winter of 1315-16 is so severe that the Baltic Sea freezes over. In 1321-22, large parts of the North Sea are covered in ice. Summers aren't much better – rain pours down, grain rots in the fields and livestock die from starvation and disease. The period known as the Little Ice Age triggers famine across Europe. In many places, people survive on dog meat and frogs, and there are even rumours of cannibalism. On top of this, war between England and France erupts in 1337 and results in 100 years of sporadic conflict. Europe's population is already weakened by the time the plague strikes, which may explain why so many succumb.

THE EPIDEMIC DRAWS NEAR

1338 In the early 1330s, contagious bubonic plague breaks out in China, and as one of the busiest trading nations of the time, it's only a matter of time before the disease spreads. Rumours of a horrific epidemic first reach Europe in the 1340s, an Italian chronicler reporting that "India was depopulated; Tatar, Mesopotamia, Syria, Armenia were covered with dead bodies". Soon, Europeans are feeling the effects of the epidemic themselves. The port town of Kaffa in Crimea is a hub for travel to and from the East as well as the silk and spice trade. In 1346, the city is attacked by Tatars. They bring with them a hitherto unknown weapon.



1346 // Tatars hurl the plague into Crimea



plague by burning away boils



1348 // Wealthy Florentines flee their plague-ridden city

A FATEFUL TACTIC

1346 During the Tatar siege of Kaffa, Tatar leader Jani Beg watches his soldiers fall one by one. Not from a hail of Italian arrows, but through a highly contagious – and deadly – disease. The khan seizes the opportunity to terrorise the city's residents and orders his men to catapult the victims' grisly corpses over Kaffa's walls. Soon the populace inside the well-fortified city are dying as fast as the Tatars outside. A group of Italian merchants hastily pack up and sail their 12 galleys back to Europe. One October day in 1347, the ships dock off the port of Messina in Sicily.

THE PLAGUE HITS EUROPE

1347-48 The people of Messina quickly realise that something is terribly wrong with the sailors. If anyone so much as speaks to them, they are immediately struck down by a deadly disease. Victims develop large boils, cough up blood and no remedy can help them. The ships are ordered away from Messina, but it is too late. The disease spreads through the city and people flee in panic – some cross to mainland Italy, carrying the disease with them. The Italian city states, where people live in close quarters, are hit hard. The rich flee to their country estates, while entire neighbourhoods of poor people are wiped out.



1348 // Jews are blamed for the plague



1348 // Bloodletting is used as a 'cure'



1348 // Pope declares plague God's punishment



Around 1349 // The plague reaches English shores



Around 1349 // Labour

1348-1349

JEWS ARE SCAPEGOATED

1348 On 15th September 1348, Jewish surgeon Balavignus confesses to poisoning the area's wells and causing the terrible disease that has broken out in Chillon in modern-day Switzerland. The fact that his confession is obtained through torture doesn't matter; Balavignus, who is burned at the stake, is just one of many Jews who suffer as scapegoats for the Black Death. Powerlessness in the face of the epidemic drives authorities across Europe into a veritable witch hunt against Jews, lepers, travellers and anyone else who might arouse suspicion. The persecution includes the expulsion of Jews across Europe from west to east.

DOCTORS LEFT PERPLEXED

1348 Guy de Chauliac is a lucky man. Not only does he hold a trusted position as the personal physician to Pope Clement VI himself, but the doctor is also one of the few to survive falling ill with the plague. His main task is to shield the Pope from the epidemic, and he uses all contemporary means: bloodletting, isolation and fires to purify the air. Uniquely, he is permitted to perform autopsies on victims and becomes the first to distinguish between bubonic and pneumonic plagues. But he can neither cure nor explain the plague. The medical profession's best guess is that it is caused by poisoned air induced by the unfavourable position of the planets.



1348 // *The Pope's physician autopsies victims*



shortages cause wages to rise



1349 // *Giovanni Boccaccio writes about the plague*



CHURCH PLUNGES INTO CRISIS

1348 Since the collapse of the Roman Empire in the late fourth century AD, the Catholic Church has grown rich and powerful. Even Europe's crowned heads must bow to the Pope if they don't want to risk eternal damnation. But the Church has met its match with the Black Death. Despite endless prayers, penances and processions, the plague continues to ravage Europe. Priests die as well as sinners, and in many places they flee their congregations, leaving them to die without receiving the last rites. Gradually, more and more people question the power of the church, paving the way for both the Renaissance and the Reformation.

BOCCACCIO THE POET

1349 The plague has barely left Florence when Giovanni Boccaccio puts quill to parchment to record his experiences. *The Decameron* recounts how some of the city's citizens, confronted with the terrifying disease, dismiss societal norms. "[They] maintained that an infallible way to ward off this appalling evil was to drink heavily, enjoy life to the full ... and shrug the whole thing off as one enormous joke." But beyond documenting the ravages of the plague, Boccaccio's masterpiece creates a new type of literature that celebrates life, curiosity and eroticism. The book heralds a new era in which European man frees himself from the constraints of religion.



1351 // The plague subsides. Up to 25 million people are buried



1434 // The Medicis rule Florence



1743 // Last European outbreak, in Messina



1894 // Plague outbreak in Hong Kong



1894 // Yersin finds the answer

1351-1894

THE HORRORS END

1351 Throughout 1351, the plague slowly subsides, leaving between a third and half of Europe's population dead as a result. Only the strongest and most isolated have survived. Villages and monasteries lay deserted and there is a labour shortage. Peasants are finally able to break away from their landlords and move to where conditions are best, and the wages of craftsmen increase. At the same time, population decline fuels technological development. Water mills and windmills are built to provide the power to turn the grinder, pull the saw or swing large hammers. The result is a period of progress and prosperity.

DEATH COMES AGAIN

1360 Europeans don't get a long respite. The continent is ravaged by an epidemic again in 1360-64. This time, children and young people born after the first outbreak are particularly vulnerable. Over the following years, the disease recurs again and again – but only as localised outbreaks, such as in England in the 1390s and Venice in 1575. The most virulent of the later outbreaks hits the south of France in 1720, and in the city of Avignon, now home to the Pope, around 6,000 people die – around a third of the city's population. The very last outbreak is in Messina, Sicily in 1743 – the same place where the plague first landed in Europe.



1486 // Art and culture flourish



1665 // The plague ravages London



1898 // Tests with rats and fleas



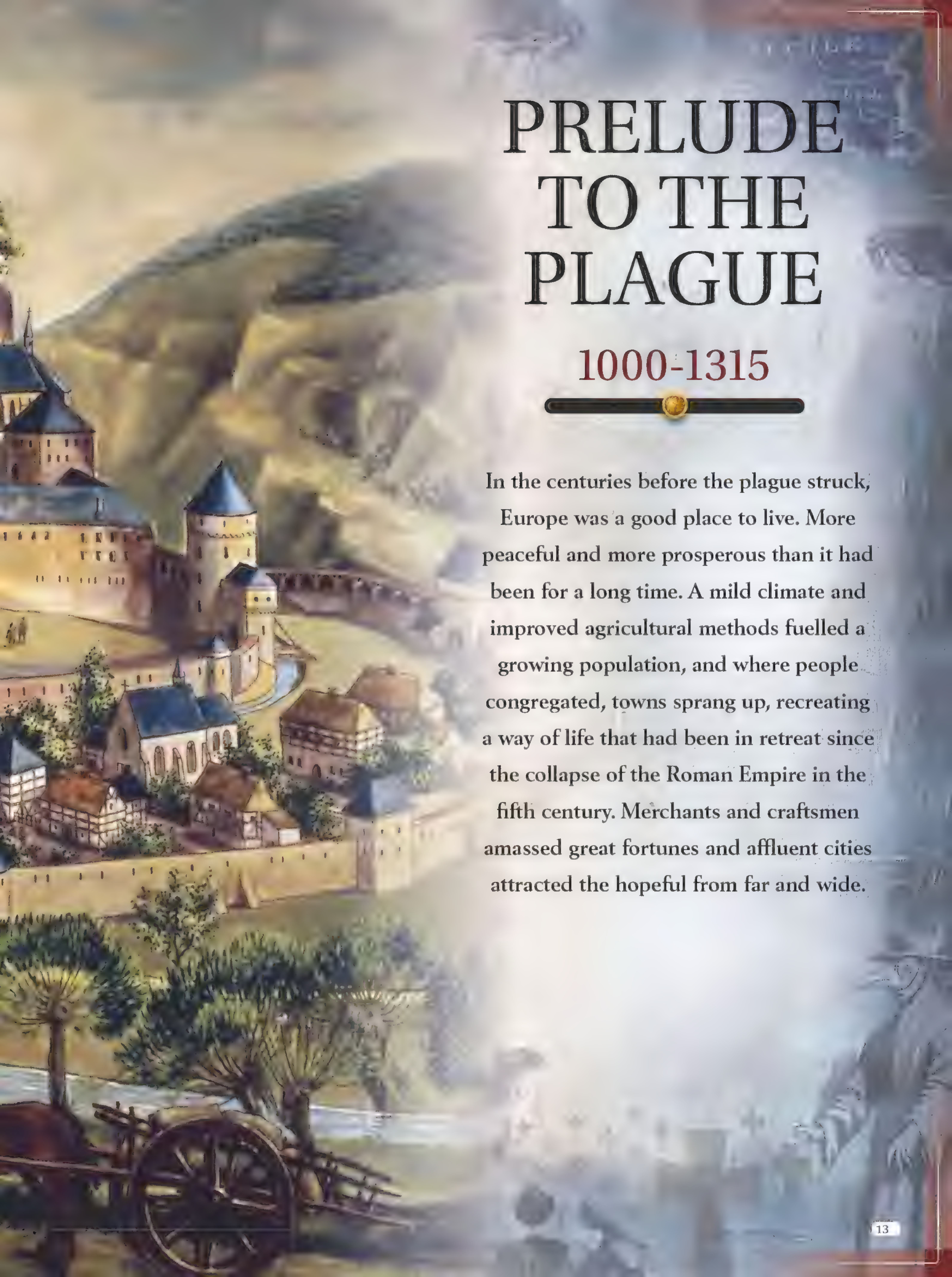
PLAGUE STRIKES ASIA

1855 In 1855, China's Yunnan Province suffers a serious outbreak of bubonic plague. Initially, it's localised, but a Muslim uprising causes people to flee the province. The plague follows the refugees southwards to places like Guangzhou, where 60,000 people die within weeks, and from there to Hong Kong and India. Despite extensive attempts by the British colonial authorities in India to contain the disease, it travels around the world to Europe, Africa and North and South America. The tenacious plague claims the lives of around 12.5 million people in Asia alone, with the last outbreak in Peru and Argentina in 1945.

BREAKTHROUGHS IN RESEARCH

1894 The devastating outbreak of plague in Asia brings Swiss-born bacteriologist Alexandre Yersin to Hong Kong. He examines the bodies of plague victims to uncover the cause of the disease – a bacterium he names *Bacterium pestis*, later renamed *Yersin pestis* after its discoverer. He continues to work on developing a vaccine but is unsuccessful. Instead it's Russian-born Waldemar Haffkine, employed at the Pasteur Institute in Paris, who discovers the vaccine in 1897. In 1898, French bacteriologist Paul-Louis Simond finally discovers how the disease spread from animals to humans – by fleas on black rats infected with plague.





PRELUDE TO THE PLAGUE

1000-1315

In the centuries before the plague struck, Europe was a good place to live. More peaceful and more prosperous than it had been for a long time. A mild climate and improved agricultural methods fuelled a growing population, and where people congregated, towns sprang up, recreating a way of life that had been in retreat since the collapse of the Roman Empire in the fifth century. Merchants and craftsmen amassed great fortunes and affluent cities attracted the hopeful from far and wide.

1000-1315

Circa 1000 After a long period of decline, Europe begins to see better times.	Circa 1050 The period of boom known as the High Middle Ages begins.	1080-1180 A time of extremely mild winters and dry summers in England, France and Germany.	1250 The weather becomes wetter again, making fields less fertile.	1315 Famine strikes throughout much of Europe.
1000	1050	1080	1250	1315

A much-needed period of peace and fertility greeted an arid Europe around the year 1000. Lush grain fields and thriving trade slowly replaced the darkness that had weighed heavily on Europeans since the collapse of the Roman Empire in the late fifth century. A time of migration, uncertainty, frequent wars and poor harvests finally seemed to be over. Powerful kings had learned to fend off external enemies and also kept each other in check. Farmers were given a new tool, the wheeled plough, which instead of just scratching the soil, turned it over and released nutrients into the crops. And epidemics such as tuberculosis and smallpox seemed to be leaving Europeans alone for a while. The result was unmistakable: from 950 to 1250, Europe's population increased from 25 to 75 million.

The rise of the High Middle Ages brought with it a new phenomenon: the medieval town. These grew up around rivers and fjords, where merchant ships could dock, or around a fort or cathedral, where traders could set up shop and sell everything from fish to woollen socks. Towns also gave rise to a whole new class in society: the industrious city dwellers. They were a new social group at a time when there were otherwise only three classes. The fighting nobility waged war and protected against enemies, while the clergy – churchmen and monks – was responsible for providing a link to God. At

the bottom of the hierarchy were the workers, mainly peasants. They were often poor people who toiled in the fields to feed the rest of society and to make more wealth for the ruling classes.

Perhaps this is why it was mostly peasants who travelled to the new and expanding towns to test their trading skills. It was crucial to be good at bartering because a lot of trade was done in kind, although coins were also used.

A young man who had left his farm and cornfields behind in favour of town life was first greeted by the city wall.

Criminals could take refuge in city churches, but were thrown out to the executioners after 40 days.

It was a protective shell around a cathedral or a castle, for example, where the area's inhabitants had once sought refuge from the savage Vikings who, among others, had ravaged and plundered Europe in the early Middle Ages. Now the

wall stood as an important defence against bands of robbers and conquering princes.

At the city gate, the hopeful new merchant could set up a stall and shout out along with his fellow traders to attract the day's customers, who might be tempted by a smoked sausage or a dozen potatoes from the fields outside the town.

LURE OF FREEDOM IN THE CITIES

Within Europe's city walls, craftsmen and traders soon found ways to band together in so-called guilds. Groups of carpenters, masons, butchers, shoemakers and goldsmiths worked together and followed the same rules, which were recorded in a document. A young man who wanted to become a carpenter had to be approved by the carpenters' guild, which also kept a close eye on the traditions and standards of the trade. The guilds were an important institution in the new medieval towns and in some cases acted as a social network. In the butchers' guild, for example, butchers could pledge to support the widows of



Medieval society was divided into three classes: the praying priests and monks, the fighting nobles, and then everyone else – the labourers.

deceased colleagues. The guilds also determined how many masons, hatters or shoemakers could settle in a particular town, how many goods they could produce and how much they should cost.

The formation of guilds was an important step towards self-governing cities, which were eventually granted privileges by local kings and princes. One example was the right to create their own judicial districts with a town court, where the city's criminals were tried, and commercial and other disputes settled. Citizens could also be exempted from paying taxes to the church or to local nobles, while the king retained his own bailiff to collect taxes.

It was also the king who could grant each town the status of market town and thus the exclusive right to engage in trade and fine crafts within a certain area.

For newcomers, the increasingly self-governed towns offered one overriding attraction in particular: the opportunity to be free. If you lived in a town for a year and a day, and were otherwise accepted by the other townspeople, you could be granted citizenship and thus personal freedom. For a craftsman, citizenship also meant that he

The wheeled plough was crucial to the population growth of the High Middle Ages because it helped deliver better yields from the land.



MEANWHILE IN CHINA

CHINA FLOURISHED

While Europeans were still developing the plough, China's ruling Song dynasty was enabling the empire to flourish. Iron production and trade across the seas were the main drivers. Culturally and technically advanced, the Song dynasty was, as far as we know, the first period in which people made use of phenomena such as gunpowder, compasses, bank notes and paper money. The dynasty was even socially conscious, creating not only educational opportunities but also a kind of nursing home for the elderly, as well as public medical clinics and cemeteries.





“ Towns also gave rise to a whole new class in society: the industrious city dwellers ”



CITIES SPRANG UP EVERYWHERE

Towns grew up around castles and rivers as the High Middle Ages took off, and with them a new way of life emerged in Europe.

■ In the dark centuries after the fall of the Roman Empire, Europe's inhabitants often had to seek refuge from invading armies, bands of robbers or rampaging Vikings in castles, churches and thick-walled monasteries. As times got better and more peaceful, the refuges became hubs of trade, and gradually temporary marketplaces turned into real towns.

Elsewhere, towns sprang up where Roman forts had once stood, while others were simply centuries-old settlements that grew larger as the population boom spread across Europe from around 1000 to 250 years later. In the towns and cities, a new class of craftsmen and traders thrived, organising themselves into guilds and together creating lively and thriving cities.





- ① Public bathhouses often served as centres of erotic entertainment, much to the chagrin of the local clergy, who acted as moral guardians.
- ② The church was both a religious centre and a meeting place. The bells not only signalled services, but also warned of fire and attacks.
- ③ Women shared the latest gossip while queuing at the town's public well. Afterwards, the water sometimes made them ill.
- ④ Houses made of wood and thatch were the cause of many fires. Later, many places began to build with bricks and stone to minimise the risk.
- ⑤ Craftsmen's workshops also served as shops, open to the street, selling everything from tailors' clothes to blacksmiths' tools.
- ⑥ Traders set up their stalls along the main road into the town. Outsiders had to pay a tax to gain permission to trade.
- ⑦ The city gate was only open during the day, and not everyone was allowed past the guards and within the thick walls.
- ⑧ Every day, the city's cows were herded out into the surrounding fields to graze. A multitude of livestock lived within the walls.
- ⑨ Many towns were located on rivers, where trading ships carrying fine silk from the Orient, for example, could dock.
- ⑩ The maintenance of the city's defences, the castle and city walls, was typically the largest item of expenditure in its budget.
- ⑪ The city walls were typically extended once every century when the town became too crowded.



Some of the narrow streets of early cities survived unchanged for centuries.

Animals and people mixed together in the streets of medieval towns.



■ The stench in a medieval town must have been unbearable. It was not uncommon to empty chamber pots out of the window, while horses and cows left dung in the street. Pigs and dogs roamed and rooted around in the muck. As towns became more densely populated, the filth and stench only increased. The unhygienic conditions meant that children, in particular, were prone to infections and died before adulthood. But the dirt and crowding also left cities vulnerable to external epidemics.

“ Drinking beer was a daily activity ”

Many cities minted their own coins – like these from Cologne in Germany.

>> could avoid paying taxes and duties – something that outsiders and travelling merchants could not avoid. Free citizens were also able to form the town councils that eventually came to administer trade and craft guilds. The battle for leadership was often between the wealthiest families, who had captured the lion's share of the trade.

The more traders, craftsmen and merchants who arrived, the more the town grew, both outwards and upwards. When there was a shortage of space within its walls, citizens were happy to add another storey to their houses, which stood side by side, sometimes almost blocking out the sun from the narrow streets. In this way, towns and cities became ticking firebombs, and residents had to be very careful with their open fires. In the French book *Le Ménagier de Paris*, published in 1393 as a guide for dutiful housewives, it warned:

“When [the servants] assure you that all the hearth fires have been covered, give your people time and place to rest their limbs. Make sure beforehand that each one has, distant from their bed, a candle and candlestick with a metal saucer.”

FAECES FLOATED IN STREETS

When villagers and peasants entered the big city, their senses were immediately assaulted. The narrow streets were teeming not only with people, but also with pigs, dogs, cats and chickens, rooting around in the stinking rubbish in the gutter and happily gobbling it up. It was quite normal to empty your chamber pot straight into the street, but if you were one of the lucky ones who had a latrine at the back of the house, you were visited by the night soil man, whose foul job it was to get rid of human waste. Usually, it was poured into the moat, if there was one. But in the worst cases, it was just emptied into the street, where it collected flies

and rats, until the rain or house owner washed away the worst of the filth. Horses and cows also used the streets as a toilet, so the citizens were unwittingly gambling with their health on a daily basis. Some accounts tell of an infant mortality rate of 50 percent.

At times the stench and filth became too much and the townspeople were asked to make the streets more presentable. In 1298, the people of Oxford were given the following order by the king's men, who could no longer cope with the “corrupted and infected” air of the densely populated town: “Cause the pigsties in the streets and lanes whereby such filth is accumulated to be removed, so that the king's town aforesaid may be hereafter kept so clean of such filth.”

However, hygiene was not entirely unheard of. Soap, for instance, was made from tallow, ash and animal fat, while ear spoons were used to scrape out earwax, and fragrant mixtures of herbs could be used to scare away flies, as the learned German nun Hildegard of Bingen (1098-1179) advised:

“Pound the nigella and mix honey with it. Where there are many flies, you may streak it on the wall, and the flies on tasting it will sicken and fall dead.”

Public bathhouses were also intended to help with hygiene. They were often funded by wealthy people who considered it a good deed to make sure that the poor could occasionally scrub off all their dirt. However, the bathhouses soon turned into places where love-struck citizens of all classes could meet and enjoy themselves, much to the indignation of the church. In Flensburg, the city's moral guardians therefore introduced a clause into the municipal law in 1295 that stated that women's bathing days were Mondays and Thursdays, and if a man bathed with women

he'd have to pay a fine in the form of his clothes.

If there was no fun to be found in the bathhouse, people met at each other's homes or in the small pubs, and drinking beer was a daily activity for children as well as adults. However, the

70%

was how much food prices rose in some places between 1150 and 1250.



alcohol content was quite low. Beer was therefore a wise choice of drink, as the wells were often contaminated by the careless handling of human waste, which slowly seeped into the soil and thus the well water.

STUDENTS SET FIRE TO SCHOOL

A medieval town's day typically began at 04.00, when every self-respecting citizen attended mass. Most shops opened their doors as early as 06.00 and then the day was well and truly underway until curfew came into force in many places at 20.00 or 21.00, when the town gate was slammed shut. The rationale was that keeping people indoors meant the streets were more peaceful and there were fewer fights. Until nightfall, however, the streets thronged with life and the marketplaces bustled with trade.

Blacksmiths, weavers, shoemakers, butchers and all sorts of other craftsmen had workshops and shops on the ground floors so passers-by could admire and perhaps buy what was on offer. City

In 1215, the king allowed Londoners to choose their own mayor.

Lively trade brought prosperity and wealth to the growing cities, and some of the new merchants became very rich.

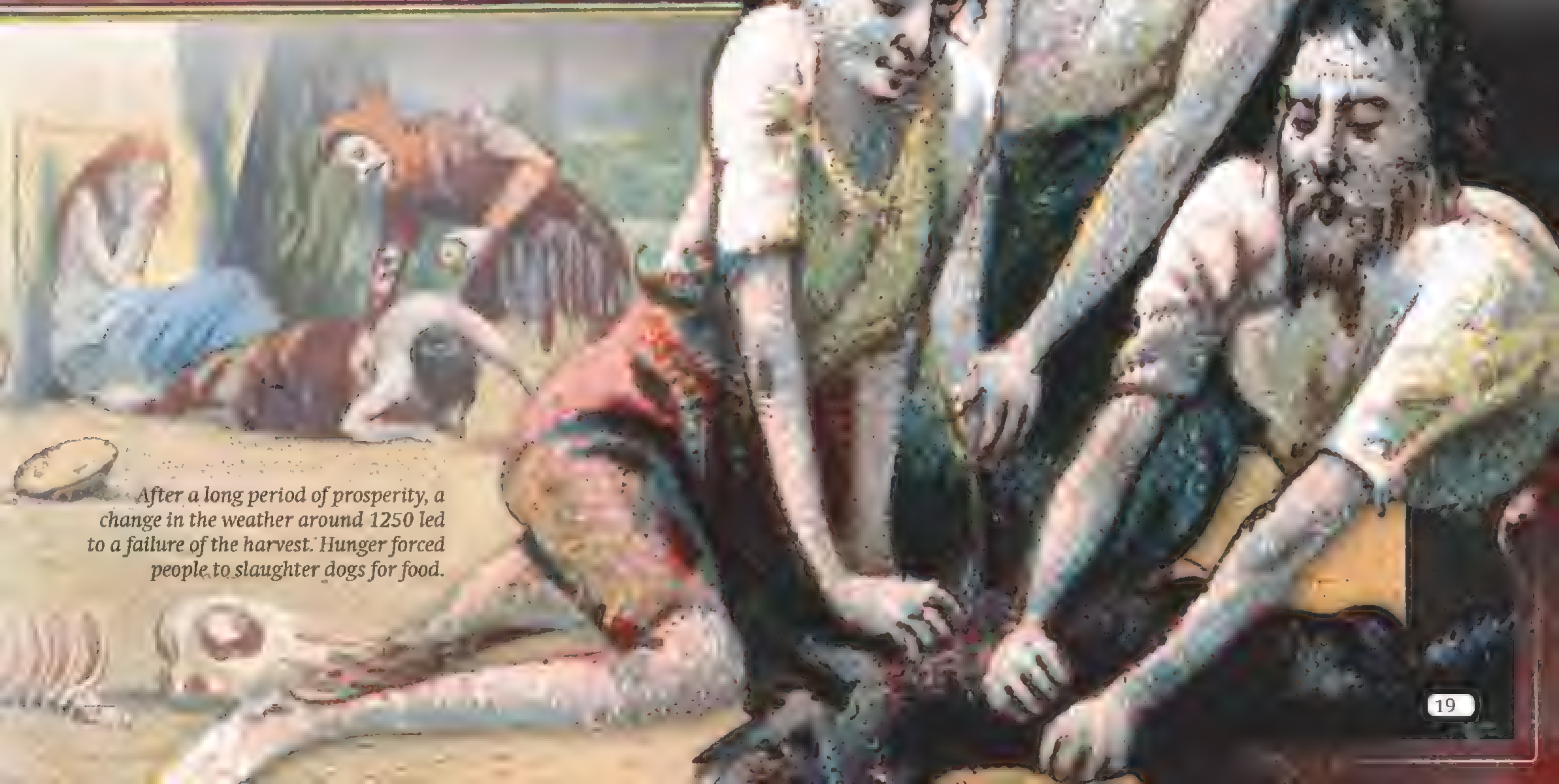


children helped out in their parents' smithy or behind the loom, while the offspring of wealthier parents were allowed to go to school. But education wasn't necessarily something to covet. Beatings were part of the curriculum, and in 937, rebellious schoolboys set fire to the monastery of St Gallen in Switzerland, where they had spent their strict school days. They used their teachers' canes as kindling.

DARK TIMES WERE APPROACHING

However, Europe's schoolboys would soon have more than canes to worry about. From around 1250, the weather became colder and wetter, while the population continued to grow. The soil became impoverished in many places, and in the worst years, harvests failed completely. People began to starve, and before long the weakest succumbed to hunger and disease. The period between 1315 and 1317, later known as the Great Famine, left millions dead and, for the first time in centuries, the population stalled. In Ypres in Flanders alone, 2,800 people died – ten percent of the population.

The decline meant that by the mid-14th century, it was a weakened and starving European population that was about to encounter the deadly plague bacterium. A recipe for disaster. ■



After a long period of prosperity, a change in the weather around 1250 led to a failure of the harvest. Hunger forced people to slaughter dogs for food.





CHURCH RAN EUROPE

313-1378

Across medieval Europe, imposing cathedrals soared skywards, reminding the faithful of God's greatness, while wealth poured into bishops' coffers. In the centuries following the fall of the Roman Empire, the Catholic Church enjoyed a meteoric rise, and what had once been an obscure and persecuted sect became a European superpower in the hands of the Middle Ages' highly organised clergy. Nothing, it seemed, could shake the mighty Church. At least, not until the plague struck.

313-1378

313 Roman Emperor Constantine becomes a Christian.

Circa 550 In Rome, the Pope establishes himself as head of Catholic Church.

Circa 1000 Christianity spreads throughout Europe.

1122 Church frees itself from control of secular rulers in matters such as the election of bishops.

1348 Plague spreads death across Europe and Church can do nothing.

1378 Greedy priests take advantage of shortage of clergy to make a fortune.

313 550 1000 1122 1348 1378

When a mysterious and terrible disease spread across Europe in 1348, medieval Europeans immediately interpreted the plague as a punishment from God. From cottage to castle, people trembled in fear of the Lord's wrath. The Tuscan poet Francesco Petrarch could not understand why Almighty God had imposed something as awful as the plague upon his creatures:

"Why is it, most Just of judges, why is it that the seething rage of Your vengeance has fallen so particularly hard upon our times? ... What if we are making atonement not just for our crimes, but also for those of our fathers ... or could it be perhaps ... that God does not care for mortal men?"

For many medieval Europeans, thoughts of God, sin and punishment overshadowed everything. Their whole life revolved around being free from sin so they could go to Heaven. But it was easier said than done, because humans were inherently sinful, according to the Catholic Church. Priests and bishops emphasised the point by depicting in words and pictures the seething, burning Hell that awaited anyone who stepped out of line. Fortunately, the Church

was always ready to offer advice and guidance in the fight against sin. Detailed rules provided guidance on everything from the observance of holy days to sexual relations between spouses. But above all, the Church itself could guarantee access to Heaven; only by wholeheartedly supporting the Catholic Church could someone be saved, the clergy claimed, and medieval people therefore donated countless money, gold and plots of land to the Church.

Europeans' awareness of sin and fear of Hell made the medieval Catholic Church an economic and political heavyweight. In its heyday in the 13th and 14th centuries, the Church owned almost half of all the cultivated land in Europe and had an income equal to that of the other great power of the time, the Byzantine Empire. Even kings had to bow down to the mighty Pope of Rome.

"Ask them whether they had relations with another man or with animals."

PRIEST KNEW ALL ABOUT EVERYONE

Locally, the Church was the centre of the community. It was where the faithful attended mass every Sunday, newborn babies were baptised and the dead were buried. Church buildings were constructed to demonstrate the omnipotence of God – and therefore of the Catholic Church. In the countryside, churches were always built high up so they could be seen from afar, and in the towns, magnificent cathedrals were placed in open squares so their soaring glory would contrast sharply with the small, squalid houses around them.

When the few people who had enough money sent their children to school, it took place in churches and monasteries, and once the world of work beckoned, monasteries were often the largest employers in local communities. In many places, monks ran the mills that ground the peasants' grain and processed their wool.

Churches were also natural gathering places. It was there that people had a chat, heard the latest gossip or made bargains. An account from 14th-century Lancaster gave a variety of reasons why people went to church, such as to buy grain, meet someone from Liverpool and hear news from Ireland. However, the Church was

The Roman Emperor Constantine's endorsement of the Christian religion and personal conversion paved the way for Christianity's transformation from persecuted sect to world religion.



Hoping for a shortcut to Heaven, medieval people donated large sums of money to priests and bishops.

keen to be more than just a meeting place. In 1215, Pope Innocent III declared that all devout Christians should confess their innermost thoughts to the Church:

"All the faithful of either sex, after they have reached the age of discernment, should individually confess all their sins in a faithful manner to their own priest at least once a year, and ... perform the penance imposed on them."

The Church wanted to know the most intimate details of people's lives, according to an edict on confession from the 1220s:

"They should be asked whether they had sexual relations with a pregnant woman ... also ask them whether they had relations with another man or with animals."

The more repentance, the better for the Church, which needed people's fear and penitence to maintain its power.

BEGAN AS PERSECUTED SECT

The transformation of the Christian Church into a superpower was not a foregone conclusion – quite the contrary. Christianity in its earliest form, as preached by Jesus Christ in the first century AD, was an underground movement, hated and persecuted by the dominant state of the day, the world power Rome.

Successive emperors made a point of hunting down and killing Christians, whom they saw as a threat to Rome's power.

Christians lived in hiding in communities along the Mediterranean coast and in Asia Minor, with little organisation and scarcely any contact with each other. When early Christians met to worship God, they did so secretly in their homes or in secluded chapels.

All this changed in 313, when the Roman Emperor Constantine decreed Christianity to be on an equal footing with all other religions in the Roman Empire – presumably because Christian communities had become so numerous that it was no

When the Holy Roman Emperor Henry IV had to do penance and bow to Pope Gregory VII, it marked a decisive shift in the balance of power between the Church and Europe's secular rulers.



“ With the motto ‘by the cross and the plough’, the monks soon established themselves as Europe’s leading agriculturists ”



In the 14th century, fine attire such as these French bishop's silk slippers testified to the wealth of the Church.

longer a good idea to have them as enemies.

For Constantine and the Roman Empire, the alliance with the Christians was to be its swansong – the empire disintegrated just over 100 years later. But for the Church, imperial recognition was only the beginning. Unlike Judaism, Christianity appealed to everyone, regardless of origin. The faith rapidly gathered followers, first under the protection of the Roman emperor and then – after the dissolution of the Roman Empire in the fifth century – aided by secular rulers such as the Frankish king and later Emperor Charlemagne.

By the year 600, Christianity dominated the entire Mediterranean region, as far as Asia Minor, into modern-day Germany and the British Isles. By around 1000, Christianity had spread as far as Scandinavia and Russia, and Europe could rightly be referred to as Christendom.

CHURCH IMITATED ROMAN EMPIRE

Early on, Western Europe's Christians modelled themselves on the Roman Empire as a top-down, well-oiled organisation with

the head – the Pope – in Rome and a network of local power brokers – bishops – spread throughout the entire region. The people of the Roman Church worked hard to strengthen the organisation's position of power by securing as much as possible of the most valuable resource of the time: land. Many ordinary people were convinced that they could gain easier access to Heaven by donating plots of land, and in exchange for support in political affairs, the Church accepted land from kings and princes on a grand scale. For example, in the mid-750s, the Frankish King Pepin III gave away the entire northern Italian city of Ravenna and its hinterland in exchange for papal support for his conquest of northern Italy.

In general, early churchmen were adept at forging alliances with powerful secular rulers. Just as early Christians had recognised the supremacy of Emperor Constantine, the popes and bishops of the early Middle Ages allowed kings and princes to decide who should be appointed bishops and even the Pope.

POPE WON POWER STRUGGLE

But this was not to continue. By around 1000, the power and wealth of the Church had reached unprecedented heights. The Church had secured between 30 and 40 percent of all the cultivated land in Western Europe, and in Rome the Pope paraded like a king, dressed in fine fabrics and resided in the Lateran Palace – an enormous complex of buildings donated by Emperor Constantine that also housed Rome's cathedral.

The time was ripe to take the next step, according to Pope Gregory VII (1015-1085). He decided that the influence of secular rulers on Church business had to end. Instead, an independent Church with a

strong Pope would arrange its own affairs. When the Holy Roman Emperor Henry IV – the most powerful man in Europe at the time – opposed him, Gregory promptly played one of his strongest cards: excommunication, with the threat of exclusion from the Church for ever. Excommunication was an extremely serious matter, because, according to the beliefs of the time, it could bring down the wrath of the Lord not only on Henry, but on his entire empire.

Henry, already under pressure from a rebellious nobility, had no choice but to humble himself and ask the Pope for forgiveness. The emperor's penance was done in style – in the autumn of 1076, he set off from the city of Speyer in the Rhineland southwards to the Alps. There, barefoot and wearing a penitential shirt of animal hair, he crossed the two-kilometre-high Mont Cenis pass and walked on to the mountain town of Canossa in northern Italy, where Pope Gregory was waiting.

According to letters written by both Gregory and Henry, the emperor – still barefoot and wearing the hair shirt – sat on the steps for three days before Gregory

gave the order to open the doors. The frozen emperor fell to his knees before the Pope, who used his new status to grant Henry a full pardon and invite him in for communion.

The Pope

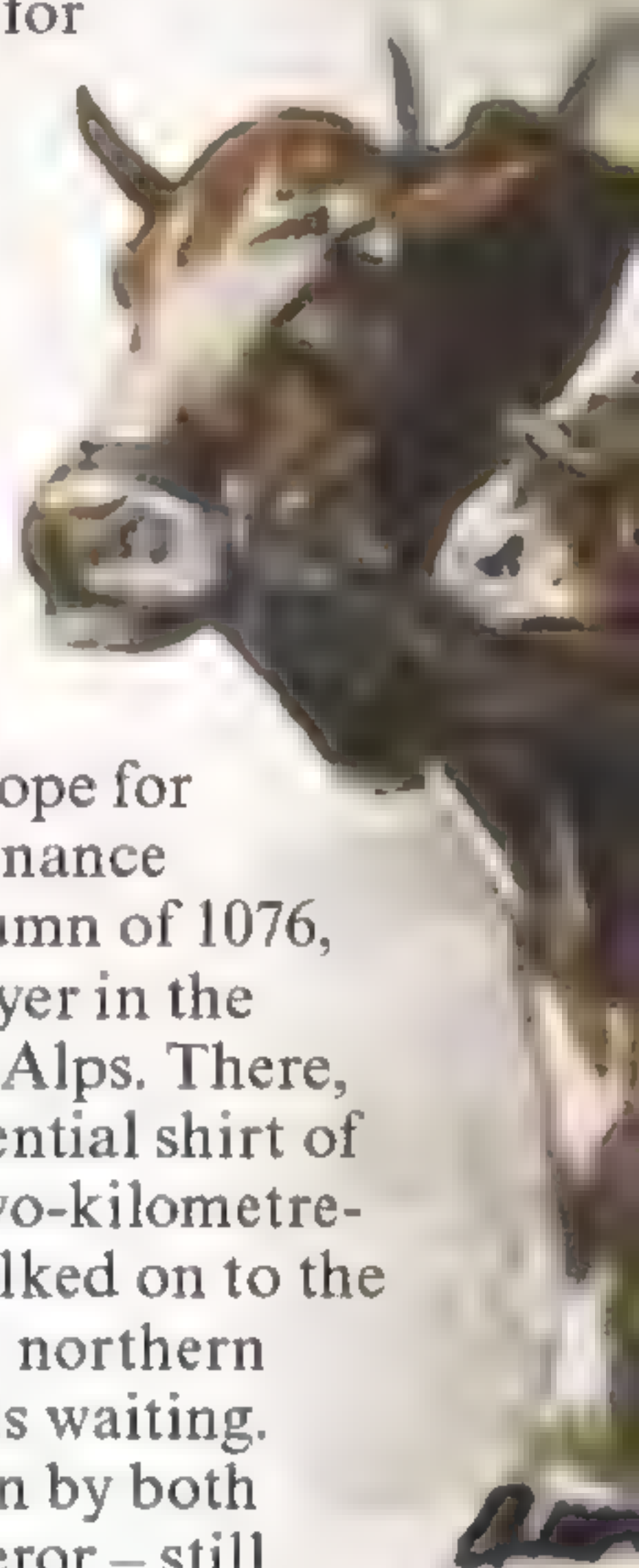
was considered by the Church to be the successor of St Peter, Jesus's disciple and the first bishop of Rome.

MONEY-MAKING MACHINES

The dispute between Henry and the Pope later flared up again, but the Church's right to appoint its own bishops was finally established with the Concordat of Worms in 1122. The agreement effectively freed the Church and its supreme leaders – the Pope, cardinals and bishops – from the state and allowed them to do pretty much as they pleased, as long as the secular rulers never became strong enough to challenge them.

The Church used its new-found freedom primarily to consolidate its power and make money. The individual churches and monasteries of Europe were linked in an economic community, much like today's multinational corporations. At the bottom of the hierarchy was the individual parish priest, whose income consisted mainly of donations and bequests from parishioners.

Part of the donations consisted of tithes, a church-levied tax typically one tenth of an individual's income, which paid for access to the Christian community and Church services. To encourage generosity, some priests abstained from performing their duties until their parishioners paid up



TECHNOLOGY

CULTURE.....

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DAILY LIFE.....



Monks were first wine connoisseurs

While cultivating vines, monks in Burgundy discovered that different plots of land produced grapes of very different quality. Based on meticulous observations and detailed records, the monks were able to categorise the land into different terroirs –

areas where the soil produced a specific, uniform quality of grapes. This method allowed the monks to cultivate the best plots of land and thus produce the finest wine, which still forms the basis of today's rules for classifying wines by their origin.

The Cistercian monks turned barren land into gold mines with their diligent labour.



– a practice that was outlawed in 1215 as it weakened the Church's credibility.

The priest's earnings had to be shared with the Pope, who, through his bishops, collected a fixed share of the parish's income. The monasteries that flourished in the 12th and 13th centuries also had to pay the Pope. The most enterprising ones became money-making machines, not least the Order of Cistercians, founded in France in 1075. To the usual monastic rules of living poorly, chastely and obediently, the Cistercians added the obligation of hard physical labour. With the motto "by the cross and the plough", the monks soon established themselves as Europe's leading agriculturists.

With pious modesty, the Cistercians mainly accepted donations of land unsuitable for growing crops – a policy that

proved to be good business. Although the monks could not grow cereals or other crops on the land, sheep thrived there. And since wool was a popular and profitable commodity in the Middle Ages, used to make clothes and carpets, the monks soon turned the barren land into a gold mine.

Living partly on donations from local Christians, the monks had more time and money to tend their sheep than ordinary peasants. Monastic farms were therefore able to produce finer wool than others, as evidenced by a record made by the Italian travelling merchant Francesco Balducci

Pegolotti, who worked for one of the great trading companies. Pegolotti had traded in all the major

European cities and then wrote a handbook, *Pratica della Mercatura*, in which he described the price and quality of wool on the European market.

According to Pegolotti, the wool from the Welsh monastery of Tintern Abbey was among the very best in the British Isles. It was so fine that the monks

could charge four times the price of the cheapest wool available. Part of their profits were invested in breeding superior sheep, which laid the foundations for the subsequent dominance of the British in the wool and textile industries.

Over time, production grew so great that the Cistercians could barely keep up with the monastery's strict schedule of prayers, services and Bible study. So, they took on laymen who weren't required to take part in the daily rituals and spiritual life of the monastery, but instead, as the rules of Barnwell Abbey in England stated, "labour for the profit of the Church in things corporeal". The employment of laymen – who, unlike the ordained monks, were paid a salary – made many monasteries the largest employers in their areas.

MONKS OWNED MILLS

Monasteries didn't stop at sheep farming. They also owned technology such as watermills and windmills, so peasants had to travel to the monasteries to grind their grain and process their wool.

In France, monks also experimented with growing vines. In the Middle Ages, wine was sought after not only by the

The Church's large revenues enabled bishops to wear elaborately decorated mitres.



> nobility and upper classes, but by the Church itself. The ritual distribution of bread and wine at the altar required a steady flow of the alcoholic drink, for which the bishops also soon acquired a taste. As well as being enjoyable, wine demonstrated a certain level of status; a bishop who could offer his guests good wine was seen as an equal of the nobility. This helped encourage gifts and donations to churches. Soon the finest wine was sold to churches and priests.

Many of the monasteries became so powerful that they were able to negotiate tax exemptions with the Vatican. The Pope believed that monasteries could do more good if they grew economically and thus become firm supporters of the Church within local communities — as well as the Pope's political ally within the Church.

However, monasteries still had to pay a tax on their income — usually five percent — to the local bishops. The tax was collected once a year, when the bishop made an inspection — known as a visitation — to ensure everything was in order, religiously and financially. Visitations were costly affairs, because the monastery had to pay for accommodation, food and drink for the bishop and his large entourage. A monastery in Bolton, for example, had to spend a fifth of its annual income on just one visitation.

If monasteries wanted to avoid the costly visits of bishops, each abbot had to seek authorisation from the Pope — in return for a fee.

POPE SMELLED OF PERFUME

Revenues from monasteries and churches, taxes from landholdings and various fees for ecclesiastical services ensured enormous wealth for the Church. Under Pope John XXII (1316-34), the Catholic Church had an annual income of 228,000 florins — about the same as the Byzantine emperor. The money was collected and administered by the Pope's financial office, the Camera Apostolica, which also had the power to prosecute people who owed the Church money. Debtors were imprisoned or, in the worst cases, expelled from the Church.

Pope Clement VI, who took office in 1341, enjoyed the benefits of power and

wealth to the full. He paid large sums of money for additions to his already enormous palace and for hunting scenes to be painted in the chapels, hired the finest musicians for his parties and was generally known as a bon vivant with a penchant for the pleasures of both table and bed. When he rode through the streets, he did so, the writer Petrarch tells us, accompanied by "trumpets sounding and banners fluttering" and wearing "perfumed garb".

To the ordinary European, the Church appeared so rich and powerful that it could only be interpreted as proof that God supported the Pope, along with his bishops and abbots. Should anyone still have doubts — despite the threat of Hell awaiting doubting sinners — the Church could serve up fanciful tales of miracles, such as bread that, during communion, began to bleed like the body of Christ it symbolised.

525

monasteries founded the Cistercian order during the 12th century.

PRIESTS FLED FROM THE PLAGUE

However, when plague broke out in 1348, the disease proved to be an unforeseen challenge to the Catholic Church.

Predictably, Pope Clement VI reacted by declaring that the disease was God's punishment for human sin. Each individual believer had to appease God through particularly pious deeds, the Pope decreed, and he thereby increased the usual acts of penance such as candle lighting, prayer and donations of gifts to the Church. The Pope also had a special mass written in which he fervently asked God to let his avenging angel's "hand be stayed" and stop the plague. The Pope also ordered — and took part in — processions in which people dressed in penitential shirts, smeared themselves in ashes and flogged

themselves with special whips fitted with iron spikes.

In England, the Bishop of Canterbury ordered prayers against the plague to be said throughout the country, with extra masses and processions on Wednesdays and Fridays. However, the Church's lack of clout soon began to show. Not even additional prayers could halt the disease, and the inadequacy of the clergy became apparent. Not only was the Church unable to prevent the thousands of deaths, but it couldn't even care for the dying. The Pope had promised absolution to anyone who died during the plague if they confessed their sins, so they would escape purgatory, the limbo between life and death where the deceased's sins were burned out of them.

The problem was that many people died before their sins were confessed. This was not only due to the rapid progression of the disease, but also because of the shortage of priests. Close contact with parishioners meant that many became infected and died, and a lot of healthy priests decided to run away before it was too late. As a result, plague-stricken Europeans often died in terror of the torments of Hell

TECHNOLOGY.....

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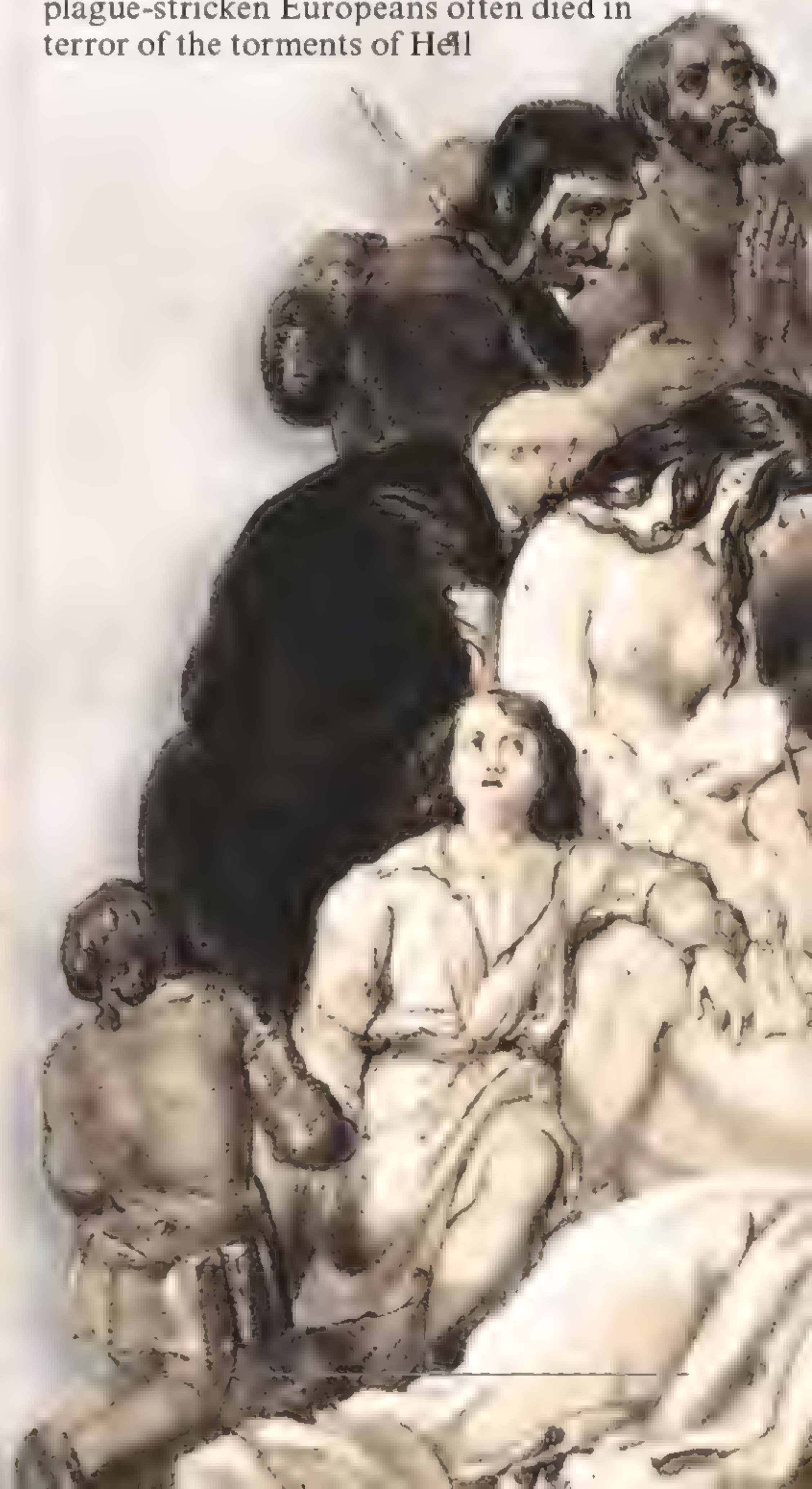
DAILY LIFE..



Church made fortune from marriages

One of the Church's main instruments of power was its control over marriage. When the Pope banned marriage between couples related by up to seven degrees in 1166, it became harder to find suitable spouses, increasing the chances of people dying

childless and bequeathing everything to the Church. But the ban was a particular problem for nobility, who'd been marrying into each other's families for centuries. So the Church turned a profit by granting dispensation in return for payment.



without ever seeing a priest. The Pope tried to alleviate the problem by recruiting new priests but on 10th January 1349, the Bishop of Bath and Wells was so desperate that he wrote to his surviving priests, allowing the sick to confess to a layman in the absence of a priest. And if they couldn't find a man, a woman could hear confession instead.

PLAGUE DAMAGED CHURCH'S STATUS

The priests who did not fall ill, on the other hand, enjoyed a golden age. During the plague, the increase in funerals provided extra income, but even after the epidemic, the high demand for priests made it possible for them to increase their personal income. The Church tried to curb its priests' greed, but this was easier said than done.

In 1378, the Archbishop of Canterbury sent a messenger to the Bishop of London with clear instructions on how much priests should charge for their services, along with threats that any priest who demanded more would be excommunicated. However, there was nothing to stop the clergy from making other demands, not least when it came to the less attractive posts in the countryside,

far from the social life and career opportunities of the cities. Thus, when the church in Chesterfield needed a new curate, the bishop had to promise that the new appointee could determine his own working hours, spend all his money on himself (part of his salary had previously been earmarked for investment in the chapel), supplement his income with other jobs and – the icing on the cake – go to the pub.

Confronted with the less-than-selfless priests and the Church's impotence in the face of the plague, many Europeans began to wonder if the Church was as righteous as it wanted to appear. Priests' overspending, power-seeking and hypocrisy caught the eye of many ordinary people and they began to wonder whether, if it was as acceptable to confess to any man or woman as to a priest during the plague, why did the word of God need to be interpreted and communicated by the Church the rest of the time? And if the Church's penances did not protect against the disease, who said that the Church was correct about anything else?

Over the next century and a half, more and more people questioned the actions and

EYEWITNESSES

Archbishop of Canterbury / 1378

PRIESTS INDULGED IN LUXURY AND LADIES

“The priests of today in the city, diocese and province of Canterbury have been so infected with the sin of greed that, not satisfied with reasonable wages, they hire themselves out for vastly inflated salaries. And these same greedy and pleasure-seeking priests vomit out the enormous salaries with which they are stuffed. They are so mad with desire, so depraved, that there is no holding them; many gorge their bellies and afterwards work themselves up into a lather of lechery over fleshly delights, until they are dragged down into the vortex of the whirlpool of evil – a detestable scandal to the clergy and the worst possible example to the laity.”

dogma of the Catholic Church. Slowly, criticism of the Church hierarchy bubbled up, paving the way for the Reformation, which in the 16th century finally ended the Roman Church's dominance in Europe. ■

Some of the churchmen tried to stop the plague with prayers and penance. Others simply ran away to save themselves.







THE BLACK DEATH

1346-1351

One fateful day in 1346, a hail of corpses rained down on the Crimean trading port of Kaffa. The bodies were those of plaguestricken Turkic Tatars who had laid siege to the town and then tried to defeat Kaffa's Italian merchants with the stench of the dead. The macabre ammunition worked better than the Tatars had dreamed. The corpses spread the infection behind the city walls, and when the merchants fled to Sicily, they took the plague with them. Over the next four years, the dreaded Black Death wiped out up to half of Europe's population.

1346-1351

1346 Tatars attack the trading town of Kaffa with the plague.

1347 Italian merchants bring the disease by ship to Europe.

1348 One in three citizens of Paris succumb to the Black Death.

1349 British ships carrying the plague arrive in Scandinavia.

1351 The first plague epidemic of the Middle Ages subsides.

1346 1347 1348 1349 1351

On a summer's day in 1349, the people of Bergen looked out to sea. In amazement, their eyes followed a ship that was being tossed about by the wind and currents off the west coast of Norway. The locals were used to ships calling at the harbour, one of the largest in Scandinavia, but this vessel was behaving most strangely.

When the waves finally washed the ship to the quay, the town's harbour workers prepared to unload the cargo. But as soon as they stepped on board, they were paralysed by a terrifying sight. The ship's crew members were sprawled on the deck. Lifeless. The dockers could see no signs of a pirate attack or storm damage. Instead, the sailors' bodies were swollen with oozing boils and dotted with blue-black patches under their skin. The deck was spattered with splashes of vomit and streaks of congealed blood. Apparently, the men had been so weak that they had been unable to move during their final hours alive.

Despite the terrible stench, the workers unloaded the ship's cargo of precious woollen clothes from London. They didn't yet realise that the ship also had a stowaway on board – the plague.

Within days, the people of Bergen began to feel ill. The symptoms appeared without warning and affected everyone, young and old, healthy and infirm. They developed a high fever, tremors and excruciating heartburn. When they vomited, their stomach contents were bloody. Fist-sized boils, similar to those of the sailors, appeared in their groins and armpits. Their skin was stained with blue-black marks. Before long, one Bergen family after another died. The dreaded Black Death, the plague that killed up to half the population of Europe between 1347 and 1351, had struck Norway.

DEATH CAME FROM THE EAST

Three years before the plague arrived in Scandinavia, rumours were already circulating in Italy's coastal towns

telling of a terrible epidemic ravaging the Far East.

"India was depopulated; Tatar, Mesopotamia, Syria, Armenia were covered with dead bodies," claimed an Italian chronicler. But despite the rumours, little did the inhabitants imagine how quickly the foreign epidemic would strangle the whole of Europe.

Italy was the largest European trading nation of the 14th century and had established good trade relations with distant Asian countries since Marco Polo's voyages in the late 13th century. In the 14th century, the port of Kaffa on the Crimean peninsula in the Black Sea served as the Italians' trading centre – a hub for travel to and from the East. There, traders from Genoa loaded luxury goods such as silk and spices on to cargo ships travelling to Europe.

However, in the 1340s, Turkic Tatars attacked the trading hub. Kaffa was besieged, but the Genoese traders managed to hold out against the Tatars until 1346, not least because the Italians defended the coastal side of the city and were therefore able to maintain the shipping link that brought fresh supplies to the city.

This lifeline was "their only hope", according to Gabriele de' Mussi, an Italian notary.

ATTACKED BY STINKING CORPSES

Just as the Tatars and their leader, Jani Beg, were beginning to glimpse victory, disaster struck. One by one, the warriors perished – not as victims of Italian arrows, but of a mysterious disease. The plague had got its claws into the Tartar troops and "killed thousands upon thousands every day", Gabriele de' Mussi recounted.

Jani Beg, seeing his army shrinking at record pace, quickly devised a cunning plan. He ordered the surviving soldiers to drag the foul-smelling corpses on to the catapults that the Tatar army had placed in a long line outside the city walls. Soon, flailing-limbed cadavers were

According to modern researchers, fleas played a key role in the spread of the plague. They transmitted the infection from animals to humans.

hurtling through the air and plummeting into the streets of Kaffa.

Inside the city walls, the besieged citizens were horrified by the rain of dead bodies and desperately tried to throw them into the sea. But they had no chance of keeping up with the pace of the catapults, and before long the entire city was enveloped by the unbearable stench. The disease-ridden corpses also poisoned Kaffa's drinking water. The attack is one of the earliest examples of biological warfare known to historians.

Tatar leader Jani Beg had hoped that the odour from the corpses would kill the inhabitants of Kaffa, or at least cause them to flee the besieged city. But his sinister plan worked even better than he could have dreamed.

Inside Kaffa, the Italian merchants were now dying as fast as the Tatars outside. The surviving Italians quickly packed their most important possessions and rushed aboard 12 galleys moored in the harbour. The sails were hoisted and they headed for the harbour town of Messina in Sicily, their homeland. Taking the plague with them.

VICTIMS COUGHED UP BLOOD

The story of how the ghost ship carried the plague from England to Bergen and Gabriele de' Mussi's wonderful account of the catapulted corpses in Kaffa must be treated with caution. The unimaginable ravages of the Black Death in the Middle Ages gave life to many myths across Europe and, according to modern historians, the tales have probably been given extra flavour to emphasise the scale of the disaster.

Some of the accounts do provide us with facts, however. In all likelihood, the disease did travel to Europe with traders from the East and was spread by merchant ships. The story that it spread from Messina to the rest of southern Europe by Genoese galleys also sounds plausible, according to historians. Several independent chroniclers described how death took over entire towns after they had been visited by foreign ships.

The Franciscan monk Michele da Piazza was one of these chroniclers. According to

The sound of a plague bell sent a chill down the spine – it signalled another outbreak.

The warlike
Tatars threw
plague-stricken
bodies over the
city walls of
Kaffa, where they
infected the city's
Italian merchants.



“Boils full of pus erupted from the locals’ armpits and groins”

his account, he witnessed the day in 1347 when the plague struck Messina. Early one morning, a cortege of ships appeared on the horizon – 12 galleys were approaching the port city, one of the most important trading centres in the Mediterranean. However, the boats only stayed briefly in Messina, as the islanders soon realised that something was very wrong with the foreign sailors.

“The Genoese carried such a disease in their bodies that if anyone so much as

spoke with one of them he was infected with the deadly illness and could not avoid death,” Michele da Piazza noted. The 12 ships were immediately ordered away from Messina, but it was already too late. In the following days, boils full of pus erupted from the locals’ armpits and groins.

“The victims violently coughed up blood, and after three days’ incessant vomiting, for which there was no remedy, they died – and with them died not only

anyone who had talked with them, but also anyone who had acquired or touched or laid hands on their belongings,” the shocked Franciscan friar recounted.

THE SICK DROWNED DURING ESCAPE

The citizens of Messina watched as more and more people succumbed. Fear of agonising death drove most to leave their homes and flee the city. Some families sailed across the Strait of Messina and travelled to Calabria on the mainland. Others went to the Sicilian city of Catania.

Unfortunately, the refugees carried the disease with them. Many did not make it very far. They collapsed on the dirt roads, fell on the shore or dragged themselves out of the boats to their deaths. Infected people also lay in fields, ditches and forests, coughing up blood before their last breath seeped out of them.

The sick and fleeing were not met with kindness on their journey. In Catania, some

Fearing contagion, even family members would not touch the plague victims lying dead in the streets or abandoned houses.



PLAGUE RAVAGED ALL EUROPE

Within a few years, the plague spread from southern Italy to the rest of Europe. Cargo ships and busy overland trade routes carried the disease from town to town. Although authorities banned foreign ships from docking and the sick were banished to remote areas, nothing could stop the Black Death.

SPREAD OF THE PLAGUE

- | | |
|--------------|---------------|
| 1 1347 | 1350 |
| 2 Mid-1348 | 1351 |
| 3 Early 1349 | After 1351 |
| 4 Late 1349 | Few outbreaks |

- ↑ The path of the plague through Europe.
 ▲ New research suggests that the plague also hit Europe from the north.

VENDSYSSEL 1349

- Arrival of plague: End of 1349.
- Number of deaths: Unknown. Historians estimate plague killed one in three in Scandinavia.
- Cargo ships brought the disease to Denmark and from there to Sweden.

BERGEN 1349

- Arrival of plague: Summer 1349.
- Number of deaths: Two out of three citizens.
- Bergen was the first city in Scandinavia to be hit by plague. Infection arrived on English merchant ships and spread quickly along the west coast of Norway.

LONDON 1348

- Arrival of plague: November 1348.
- Number of deaths: One in three of the city's 60,000 inhabitants.
- According to sources, the stench of dung and pestilence hung over the city, and Edward III joined fight for better hygiene.

PARIS 1348

- Arrival of plague: Spring 1348.
- Number of deaths: One in three of Paris's 150,000 inhabitants.
- On the worst days, up to 800 died. Cemeteries dug mass graves and laid the dead to rest with hastily made lead crosses.

AVIGNON 1348

- Arrival of plague: February 1348.
- Number of deaths: Half of the 50,000 inhabitants.
- The Pope, based in Avignon, authorised the city's doctors to carry out autopsies on the plague victims. They found that the blue-black marks were caused by haemorrhaging under the skin.

VENICE 1348

- Arrival of plague: January 1348.
- Number of deaths: One in three of the 100,000 inhabitants.
- To contain the plague, the authorities threatened to burn ships that docked without authorisation. Vessels were quarantined for 40 days.

MESSINA 1347

- Arrival of plague: October 1347.
- Number of deaths: Unknown. Contemporary sources indicate that Sicily was almost emptied of inhabitants, but this is an exaggeration.
- Messina was the first city in Europe to be affected by the Black Death.

KAFFA 1346

- Arrival of plague: End of 1346.
- Number of deaths: Unknown.
- Turkic Tatars besieged Kaffa and threw the bodies of plague victims over the city walls. Italian traders in the town were infected and took the disease to Italy.



SYMPTOMS

BLUE-BLACK MARKS WERE SIGNS OF PLAGUE

A few days after a person had been infected, the disease became apparent. The three types of plague – bubonic, pneumonic and haemorrhagic – caused different symptoms.

1 Initially, all three types caused fever and chills. Muscles and joints became sore and the sufferer might have been short of breath – especially with pneumonic plague.



2 The fever grew, the sufferer vomited – including blood – and struggled with a strong, unquenchable thirst. The blue-black marks that gave the plague its name, Black Death, spread under the skin. If the patient was suffering from bubonic plague, the skin also began to bulge with boils that became filled with foul-smelling pus. These usually appeared in the armpits and groin, and on the neck.



3 The boils grew and the bluish-black marks spread as the sufferer became weaker and weaker. In its final stages before death, the disease could also damage the nervous system, causing spasms and loss of speech and senses. Plague victims often died convulsed in pain and choking on their own vomit.



50 kilometres south of Messina, rumours of the dangerous disease were already rife and no locals wanted to approach the newly arrived refugees.

"Don't talk to me if you're from Messina," the people of Catania shouted when a stranger came into view, according to Michele da Piazza. In the rest of Sicily, too, the Messina refugees became notorious and had to settle in the more desolate parts of the island. However, nothing could stop the Black Death. For seven months, the plague ravaged the island, killing half the population. But that was just the beginning.

DEATH CONTINUED ON TO FRANCE

After being turned away in Messina, the 12 Genoese galleys sailed up the west coast of Italy. The crew hoped to be allowed to go ashore, but every time the ships docked, they were immediately sent away. Rumours of their deadly cargo had preceded them, and even in the sailors' home town of Genoa, the locals would not welcome them.

So, the ships continued along the southern coast of France and, during the early months of 1348, spread the plague to Provence. Medieval sources estimate that the disease killed 60,000 people in Marseille alone – a number that modern historians doubt, as the city's population was not particularly large at the time. In any case, Provence was one of the hardest-hit regions in Europe. Between 50 and 70 percent of the population died.

However, the story that the 12 galleys that left Kaffa on the Black Sea with plague in their cargo spread the disease all along the Mediterranean beaches of southern Europe is not very credible, according to historians. It is unlikely that the crew could have survived such a long sea voyage.

DOGS DUG BODIES OUT OF GROUND

Once the plague had taken hold in southern European port towns, it took little to spread the infection inland. From the coast, traders travelled on with their goods on carts. The disease followed the trade routes to villages and market towns, magnificent estates and impoverished hovels.

To get from Genoa to Piacenza, where the notary Gabriele de' Mussi lived, the merchants had to make a journey of almost 100 kilometres over very hilly terrain. In 1348, however, a Genoese man suffering from the plague managed to make it all the way to Piacenza, where he fell dead in his friend's house. Shortly after, his friend, his family and the whole neighbourhood died.

"I don't know where to begin. Cries and laments arise on all sides ... and countless dead being buried," Gabriele de' Mussi lamented, then continued:

"The living made preparations for their burial, and because there was not enough room for individual graves, pits had to be dug in colonnades and piazzas, where

Plague-ridden residents were thrown out of the city gates and banished to deserted areas such as forests or specially selected quarantine islands.



A letter like this 16th-century one guaranteed the bearer was not suffering from the plague, and served as a pass to enter cities or mines.

nobody had ever been buried before.” Several Italian chroniclers also recounted how the huge number of dead created an unmanageable chaos of corpses. In the city of Siena, bodies were not buried deep enough in the ground. The stench seeped ominously from the graves, and not even the dead could rest in peace.

“There were those so badly covered with earth that the dogs dug them up and gnawed their bodies throughout the city. And there were none who wept for any death, for everyone expected to die ... There was so much horror that I, the writer, cannot think of it,” wrote Agnolo di Tura, an Italian who had to bury the bodies of his five children with his own hands.

But not everyone dared to bury their family themselves – or even approach the diseased bodies. Fearing infection, many inhabitants left the sick to fend for themselves in the gutter:

“Oh, father, why have you abandoned me? Do you forget that I am your child?” was the lament in the streets and alleys of Piacenza, according to Gabriele de’ Mussi, who also reported that the homes of the dead stood open with their jewellery, money and riches on view. People could walk right into the houses from the street. If they dared.

POPE BARRICADED HIMSELF IN The Black Death also reached the French city of Avignon, which had been the seat of the Pope since 1309. Together with his personal physician, Guy de Chauliac, Pope Clement VI barricaded himself in a chamber in his palace. The German writer Matthias von Neuenburg reported that Clement VI didn’t have any contact with anyone else for several months and that he was surrounded day and night by two large fires whose flames were supposed to clear the air of infection. It seems the isolation saved the Pope – at least, he survived.

As the Pope sat in his palace, Avignon’s scholars described how the Black Death was ravaging the city. Among them was a cleric who, in April 1348 – two months after the outbreak of the disease – wrote to a fellow cleric in the Belgian city of Bruges.

“No doctor will visit the sick (not if he were to be given everything the sick man owns),” the letter said, then continued:

“Also, sea fish are now not generally eaten, men holding that they have been infected by the infected air. Moreover, no kinds of spices are eaten or handled, unless they have been in stock for a year, because men are afraid that they might have come from the galleys of which I spoke.”

At the end of his letter, the cleric from Avignon warned his friend in Bruges that if he wanted to avoid this terrible disease, he should: “Eat and drink moderately, and



avoid getting cold ... [A]bove all, mix little with people." This friendly advice would prove useful to the fellow cleric, because the plague was travelling northwards.

800 CITIZENS DIED EVERY DAY

During 1348, the Black Death spread through France. The country's major rivers – especially the Rhone – acted as raging arteries for the cruel disease as riverboats transported goods from south to north.

Paris, one of Europe's largest cities with 150,000 inhabitants, was not spared either; 50,000 Parisians succumbed to the Black Death, according to annals kept by monks in Saint-Denis, causing overcrowding in the city's main hospital, which bore the poetic name of Hôtel-Dieu (God's Hotel):

"The mortality was so great that, for a considerable period, more than 500 bodies a day were taken ... from the Hôtel-Dieu in Paris for burial in the cemetery of the Holy Innocents," wrote the chronicler Guillaume de Nangis, who also praised the hospital's "saintly sisters", a great number of whom "were called to a new life by death".

As many as 800 citizens died every day during the worst periods, the annals record. In the cemeteries around Paris, the dead were laid to rest with simple lead crosses. Those left behind had neither the time nor the money to make finer versions.

KING RAILED AGAINST CITY'S RUBBISH

Across the English Channel, two merchant ships docked in Bristol. The holds were full

of barrels of wine from the vineyards around Bordeaux, but the visiting sailors also had other cargo on board. When the ships later reached the English town of Melcombe, the locals crowded the quayside, but their curiosity soon turned to horror.

"In them were sailors from Gascony who were infected with an unheard-of epidemic illness called pestilence. They infected the men of Melcombe," the chronicles recount. After ravaging southern England, the plague travelled to London at the end of 1348, and in the first months of 1349, it killed one in three of its inhabitants.

King Edward III of England himself, in a memorandum to members of parliament, stated that the disease was escalating violently, so he ordered the opening of a new cemetery. The king also expressed his concern about the unsanitary conditions and complained to the mayor of London that people were throwing rubbish directly from their houses: "The streets and lanes through which people had to pass were foul

with human faeces and the air of the city poisoned to the great danger of men passing," he said.

Despite the king's good intentions, he could do nothing about the Black Death. And before long, the disease was on its way across the North Sea – again on board ships. First to Norway, then to Denmark.

SHIP RAN AGROUND IN VENDSYSEL

The Black Death, as the plague was called on account of the dark patches under the skin of the sick, struck North Jutland at the end of 1349. According to medieval accounts, it was caused by a macabre love affair: a woman living in England was married to a somewhat older gentleman. The woman also had a young lover with whom she would much rather be with, so she went to a wise old woman for advice. The old woman advised the younger one to find a plague-ridden corpse, cut open its stomach, chop up the entrails and hide the bits in her husband's food. Soon the elderly

66 800 citizens died
every day during the
worst periods 99



husband fell ill and died shortly afterwards. But others in the neighbourhood were also affected by the disease.

In desperation, a group of men, fleeing the illness, jumped on board a ship in the nearest harbour. After travelling across the North Sea, the ship ran aground in Vendsyssel, Denmark, where the locals – eager to get their hands on the cargo's valuables – jumped aboard. The North Jutlanders barely noticed the crew members lying lifeless on the deck. But as their own bodies began to swell and bruises spread under their skin, they recalled the ship's blue-black corpses.

The story of the ship in North Jutland was written down by the Danish nobleman Iver Juul around 200 years after the Black Death and should probably be read as a dramatic narrative rather than an accurate account of events. However, according to the few surviving Danish annals, the plague probably struck the country at the end of 1349. The books report a "Great Mortality" in the following year. Despite the sparse documentation, historians estimate that the plague wiped out around a third of Scandinavia's population.

"God for the sins of men has struck the world with this great punishment of sudden death," said Swedish King Magnus Eriksson, who claimed that the plague had killed half of his subjects. In 1350, he sent a letter to the Pope in Avignon complaining

that he could not carry out his crusade in Russia because the plague had drained Sweden's army of able-bodied men. What he could not possibly know was that Russia, too, would soon lose many men to the Black Death.

SURVIVORS LIVED IN REMOTE PLACES

The year after the disease hit Scandinavia, it spread through Germany and Poland eastwards to central Russia, but then subsided. The survivors were people with strong immunity, or those who had lived so far from the trade routes that the disease had not reached their homes.

In Nuremberg, the plague affected only one in ten inhabitants. This was probably due to strict hygiene rules.

For example, the inhabitants of the isolated valleys of the Pyrenees and some parts of the Alps escaped the dreaded disease. Communities around the Baltic Sea were also spared.

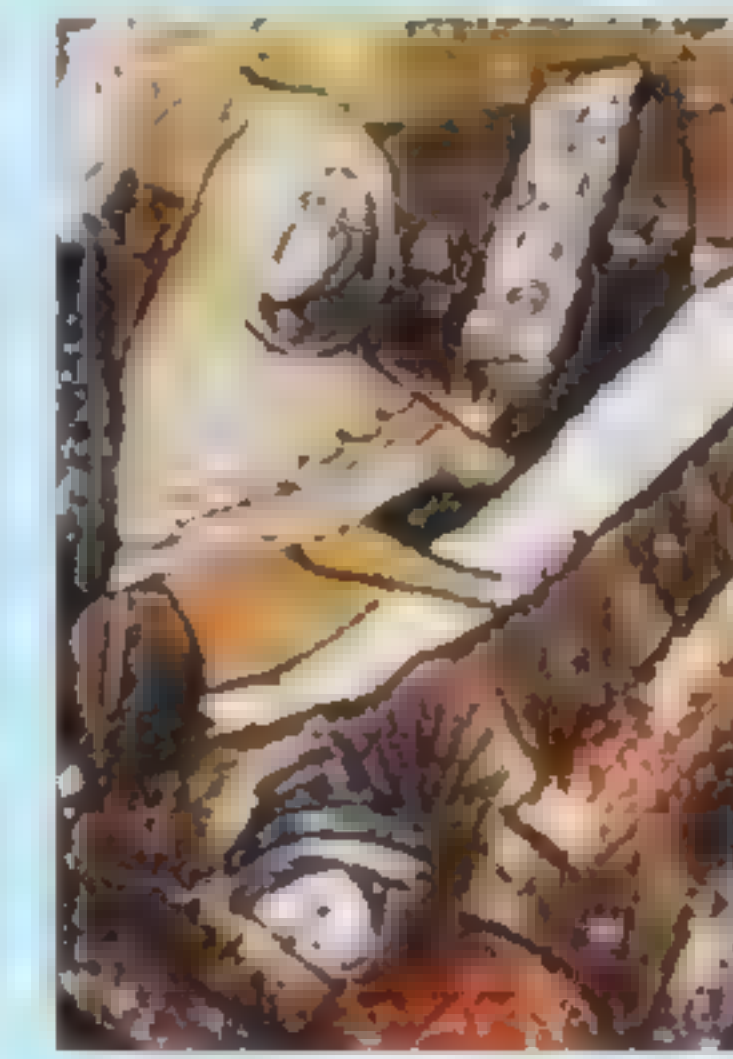
Some cities, such as Nuremberg in Germany, suffered remarkably low losses despite the busy commercial traffic. Historians think it was due to Nuremberg's strict hygiene rules. For example, the authorities decided that rubbish had to be removed from households, and street sweepers kept the streets clean on a regular basis. The residents could wash themselves in 14 public baths, and a fixed part of workers' wages was earmarked for the upkeep of the baths.

As the ravages of the disease slowly subsided, survivors tried to carry on in a

EYEWITNESSES

Gilles li Muisis / Abbot of the town of Tournai

CITIES SHRANK



“The death rate was unbelievable ... Travellers, merchants, pilgrims and others who journeyed through the area reported that animals roamed freely through fields, towns and waste land, that barns and wine cellars stood open, houses empty, and that few people were to be seen. In many towns, cities and settlements, where there had originally been 20,000 people, scarcely 2,000 remained; in many towns and villages 1,500 people were reduced to barely 100.”

Europe where between a third and a half of the population had been killed by the plague. The struggle for survival gave rise to several plague myths, such as one about a Swedish woman who was the only survivor of the plague in her village. Guided by the smoke from a distant fire, she left her home and walked towards the fire until she reached another village. There she found a man who was another sole survivor, and the two of them fell in love. ■

Confused Christians blamed the Jews for the ravages of the plague and drove innocent people from their homes.







BLAMED FOR THE PLAGUE

1348-1350

No sooner had the plague struck Europe than angry and helpless people began to look for someone to blame. No one who strayed even slightly outside society's norms was safe from persecution and irate mobs. Primarily, however, plague-fearing Europeans targeted one group of people who were often made scapegoats when things went wrong during the Middle Ages: the Jews.

1348-1350



1348 The first persecution of Jews due to the plague takes place in the spring in France.

1348 Monks are warned of persecution by clergy in Catalonia.

1348 During spring and summer, Jews are murdered in Narbonne, Carcassonne and elsewhere.

1348 In September, Jews confess under torture to poisoning wells with the plague.

1350 Nine men are accused of spreading plague in Sweden.

1348 1348 1348 1348 1350

The Europeans who lived through the horrors of the plague had to witness the sudden deaths of thousands of their fellow human beings every day, without anyone being able to provide a satisfactory explanation for what was killing them. The Church preached that the Black Death was God's punishment for man's sins – but even the most pious were afflicted. Doctors tried to protect themselves with fragrant herbs, but they, too, died like flies.

No one at the time realised that microscopic bacteria, carried by fleas, which had arrived in Europe as stowaways on the backs of ship rats from the Far East, could spread so much death and horror. So, far more fanciful explanations based on people's prejudices quickly spread. Vagabonds, beggars, priests, Arabs, witches and lepers were all blamed for the plague's many deaths, but one group of people in particular was singled out as scapegoats: the Jews. In 1349, the Franciscan monk Herman Gigas offered this explanation for the plague's ravages, using the scanty evidence of the time:

"Some say ... that the Jews planned to wipe out all the Christians with poison and had poisoned wells and springs everywhere. And many Jews confessed as much under torture: that they had bred spiders and toads in pots and pans, and had obtained poison from overseas; and that not every Jew knew about this wickedness, only the more powerful ones, so that it would not be betrayed."

USURY LED TO HATRED OF JEWS

For many, this was the most plausible explanation: the Jews were poisoning the

water. And they were not going to get away with it.

Jews had long been hated in many European countries. In Germany, and to some extent in France and Spain, Jews ran money-lending businesses in almost every town. Barred from all civil and military occupations, from owning land or working as craftsmen, lending money was all that remained open to them. The arrangement was convenient, because the Church forbade Christians from charging interest. So, in the 13th century, as the European economy grew, the Jews did well. But the 14th century saw an economic downturn, which also affected the Jews. Meanwhile, cunning Christian financiers had circumvented the Church's ban on charging interest and had taken the best customers. Jews were therefore left with the worst

The Pope disagreed with persecuting Jews for spreading the plague, unless a "competent judge" could find evidence of guilt.

payers. With very few sanctions against non-paying debtors, the opportunities for profit were poor and the risks high. The result was extortionate interest rates that reinforced Europeans' image of the archetypal Jew: a petty, money-grubbing loan shark.

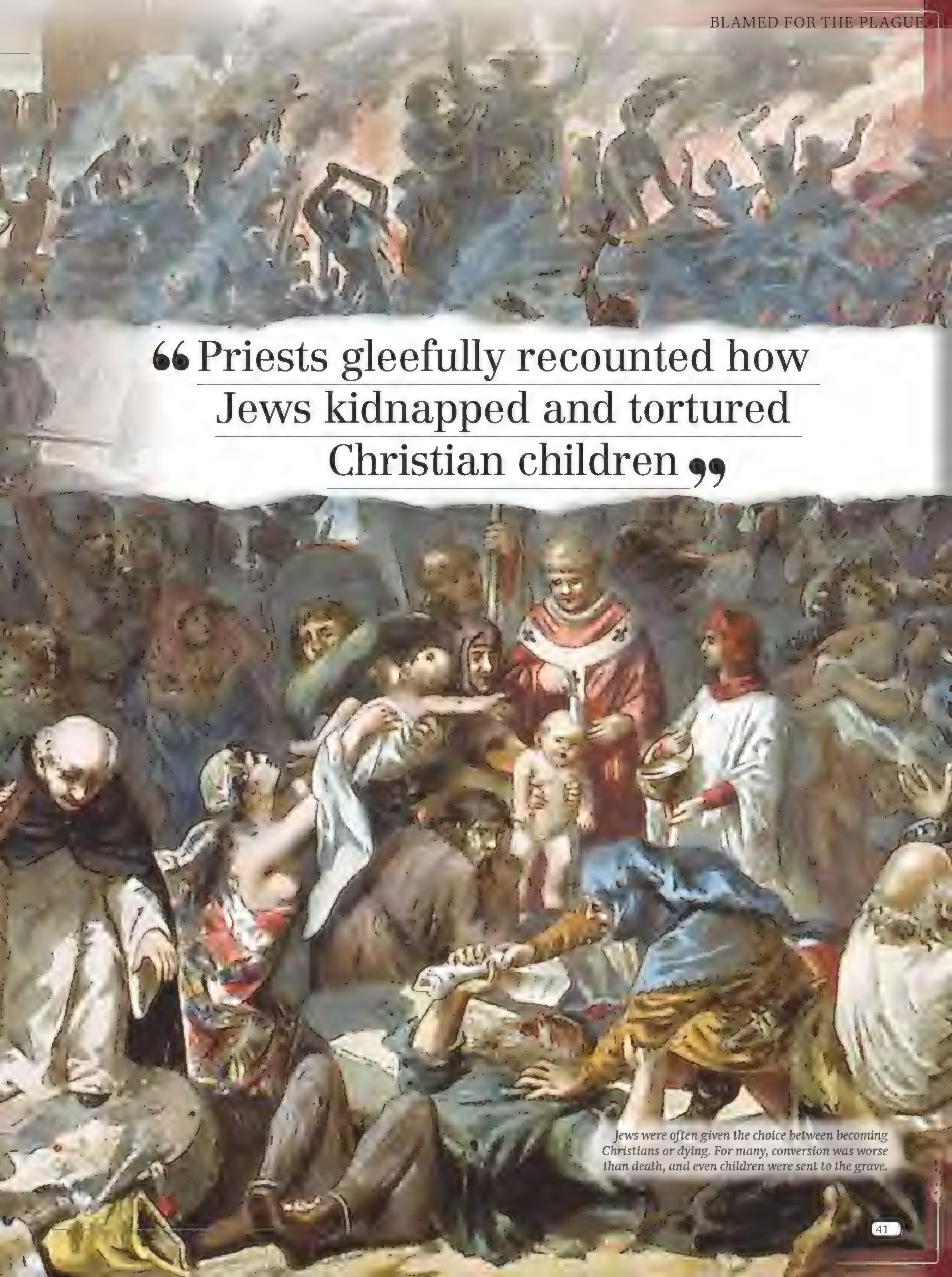
JEWS SEEN AS ANTICHRIST

The Jews' role as money-lenders was not the only reason why they were singled out as scapegoats when things went wrong. Many blamed Jews for Christ's crucifixion and even viewed them as the antithesis of the Christian Messiah – the Antichrist. Priests gleefully recounted how Jews kidnapped and tortured Christian children, and artists often depicted Jews as devils with goatees and horns.

Nor was the idea of Jews poisoning Christians new. As early as 1267, for example, the authorities in Vienna banned >



Some medieval Jews became rich and could celebrate Passover with silverware.



“Priests gleefully recounted how
Jews kidnapped and tortured
Christian children”

Jews were often given the choice between becoming Christians or dying. For many, conversion was worse than death, and even children were sent to the grave.

> citizens from buying meat from Jews, believing it to be poisoned. The Black Death, however, provided an opportunity to bring all the different notions of Jewish wickedness into a single accusation: it was the Jews who'd brought the plague to Europe by poisoning the drinking water.

A few sources also spoke of poisoned air, but in the vast majority of cases, the accusation centred on the poisoning of water, for which there was a plausible explanation. Jews, because of their religious rules about kosher food and drink, were in the habit of taking their drinking water from open springs rather than drawing it from wells like other people. The logical conclusion, according to many, was that Jews avoided wells because they had poisoned them.

The fact that Jews often lived in isolated neighbourhoods and were therefore likely to be infected later than others probably also added to the suspicion against them.

QUESTIONABLE CONFESSION

Once Jews were identified as the culprits, the consequence was obvious: to stop the plague, the Jews had to be killed.

The first cases of Jewish persecution triggered by the Black Death probably took



This shoe was found in Nuremberg's Judengasse, one of the Jewish neighbourhoods of many European cities.

place in southern France in the spring of 1348. Around April and May, 40 Jews were

"Once Jews were identified as the culprits, the consequence was obvious: to stop the plague, the Jews had to be killed."

burned at the stake in Toulon in Provence. Subsequently, both Narbonne and Carcassonne methodically exterminated all their Jewish inhabitants. Yet it is possible that the madness would not have spread any further had it not been for the authorities behind the trial that took place

at the castle of Chillon in present-day Switzerland in September 1348. A group of Jews stood accused of poisoning the area's wells and several other sites. The Jewish surgeon Balavignus was the first of the group to be subjected to the painful medieval

interrogation methods, and on 15th September, he broke down under torture and confessed to all charges.

The Chillon authorities chose to share the ravings of the tortured Balavignus with, among others, their colleagues in Strasbourg. According to the authorities' letter, Balavignus had said that he had received from "a Jew boy poison in an eggshell; this was a powder in a thin sewn leather bag, together with a letter, in which he was ordered on pain of ban and in obedience to their law to put this same poison into the larger and smaller wells of his town, as much as was required to poison the people who fetched their water from there, and that he should reveal this to no one on pain of the above punishment".

RABBIS BEHIND POISONING PLAN

As further 'evidence', the letter included a description of the way Balavignus had confessed how and in which spring he had placed the allegedly black and red poison. According to the authorities' description, the spring was then examined and a poison-like substance was found, which was given to a Jew who died immediately, thus proving that it was poison. In addition, a piece of cloth was found in which the poison had allegedly been transported.

According to the letter from Chillon, Balavignus had also reported that rabbis



Many medieval Jews made their living as money-lenders in cities, as most other professions were forbidden to Jews. Some became rich, but the loan business also gave Jews a reputation of being greedy. This helped make them even more unpopular.

CONFESSIONS WERE BROKEN, CRUSHED AND SAWN OUT

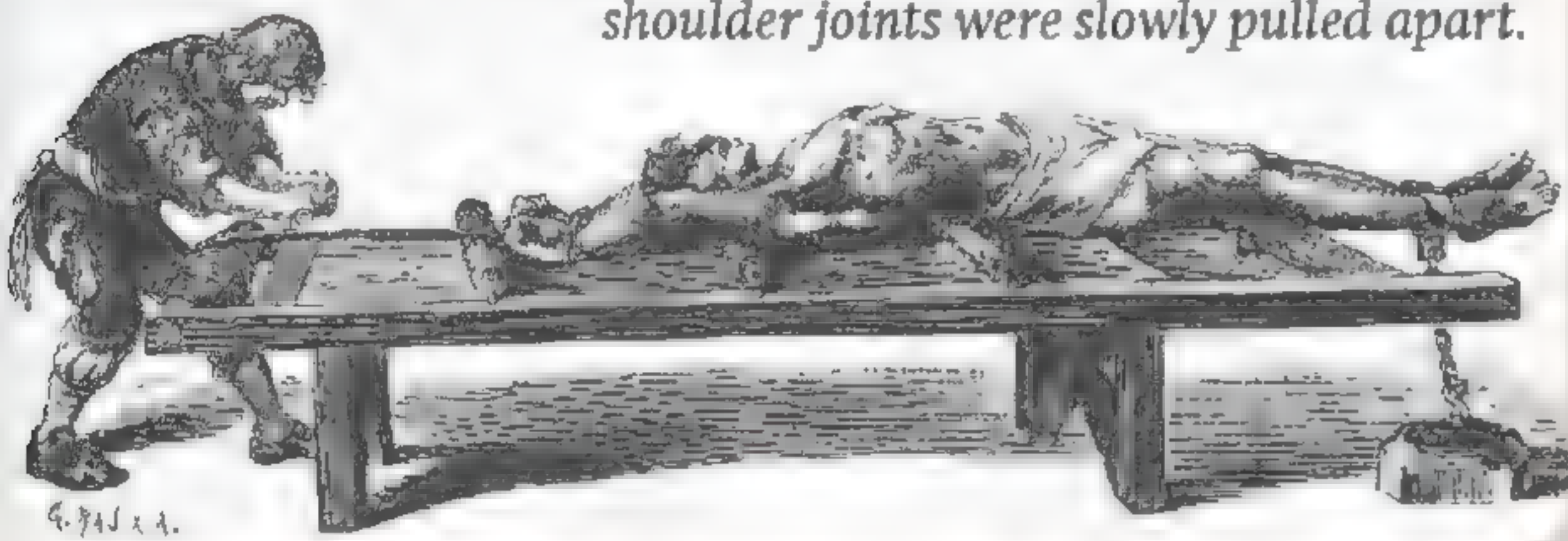
Several Jews confessed under torture to spreading the plague. When such confessions had to be elicited, medieval executioners could choose from a veritable cabinet of horrors packed full of torture instruments.

RACK

■ Ever since ancient Babylonia and Egypt, torture chambers reverberated with loud cracking sounds as victims' muscles and joints snapped on the rack. The executioner slowly tightened a rope around a roller so that the restrained victim – sometimes lying on spikes – was stretched

up to 30 centimetres longer. Sometimes the executioner would cut the muscles slightly to make the joints snap sooner. The torture method was not necessarily fatal if the executioner stopped in time, but it was extremely painful and was used as late as the 18th century.

The victim's muscles and elbow, knee, hip and shoulder joints were slowly pulled apart.



WHEEL

■ Torture on the wheel was widespread in the persecution of Jews during the Black Death. The victim's limbs were tied to the spokes of a large wooden wheel, which was then turned slowly while the executioner crushed the victim's bones with a heavy hammer. With a body full of splintered bone, the victim was then left to die a slow and agonising death before the wheel was finally raised on a tall pole.



The wheel was a common method of torture throughout Europe, and Jews felt its pain during the plague.

SAW



■ One of the most gruesome tortures required nothing more than a saw. The victim was hung by the feet so that blood could flow to the head and keep the hapless person alive as long as possible, while two executioners sawed from the crotch down towards the head. The saw was allegedly used for both punishment and interrogation, but there are doubts about how much it was used.

Many martyrs were depicted being tortured to death by executioners with a saw.

HEAD CRUSHER

■ A helmet-like contraption was placed on the victim's head with a bar under the chin, and the executioner then tightened the screw so that the tortured person's skull was slowly crushed. First the teeth dug into the jaw, which soon broke. Then the cheekbones cracked, and finally the head was crushed so that the

cerebral fluid began to leak out. Some head crushers were reportedly equipped with small containers that could catch the eyeballs when they were squeezed out of the victim's eye sockets. It was possible to stop the head crusher before death, but the victim would often have suffered irreparable damage in the process.

With the head crusher's screw, the executioner could squeeze the cerebral fluid out of his victim.

PEAR OF ANGUISH

■ There were three versions of the pear: one to put in the victim's mouth, one for the rectum and one for the vagina (the latter was used particularly against women suspected of having slept with the Devil). The method was the same for all three types of pear: the instrument was inserted into the chosen orifice and the executioner slowly turned the handle, causing the bulb to expand until the victim cracked.

Heretics, in particular, had the bulb stuck in their mouths as punishment for blasphemous speech.





66 In Narbonne, condemned Jews were first torn by red-hot pincers

had given orders to poison the citizens of a number of other towns. Finally, the letter described several similar cases, before the authorities ended the missive by reassuring the many recipients that all the Jews mentioned had been burned and Jews throughout the area had been persecuted, so there should be none left alive.

With the detailed confessions of Balavignus and the other Jews of Chillon, people all over Europe suddenly had what they thought was conclusive proof of the Jews' guilt. No one seemed to care that the so-called confessions had been obtained under the most terrible torture.

MASSACRES SPREAD LIGHTNING FAST
On 21st September 1348, the authorities in Zurich banned Jews from entering the city.

In Basel, all the Jews were rounded up and locked in wooden buildings and burned alive. And Austrian Canon Heinrich von Diessenhoven gruesomely described how Jewish persecution had spread across his country:

"All the Jews between Cologne and Austria were burnt and killed for this crime, young men and maidens and the old along with the rest ... First Jews were killed or burnt in Sölden in November, then in Zofingen they were seized and some put on the wheel, then in Stuttgart they were all burnt. The same thing happened during November in Landsberg, a town in the diocese of Augsburg and in Bueron, Memmingen and Burgau in the same diocese. During December they were burnt and killed on the feast of St Nicholas in Lindau, on 8th December in Reutlingen, on 13th December in Haigerloch, and on 20th December in Horw they were burnt in a pit. And when the wood and straw had been consumed, some Jews, young and old, still remained half alive. The stronger of them snatched up cudgels and stones, and dashed out the brains of those trying to creep out of the fire, and thus compelled those who wanted to escape the fire to descend to hell."

In January, the Jews of Freiburg, Ulm and Speyer also went to their deaths. In Speyer, the dead Jews were piled into large wine barrels and floated down the Rhine. In

Several sources tell of Jews who volunteered to be burned when they had no other options.

Hatred of Jews was fuelled by myths of mystical rituals involving Christian sacrifices and rabbis drinking blood.

February it was on to Gotha, Eisenach and Dresden, then on to Worms, Baden and Erfurt in March. After this there was a pause in the massacres, but in July in Frankfurt am Main and in August in Mainz there were fresh persecutions. In Mainz, the Jews defended themselves against the Christians, killing 200 of them, but the retaliation was even more brutal and all of the city's approximately 6,000 Jews were killed.

Accusations of ritual murder by Jews, widespread in the Middle Ages, were recycled in Nazi propaganda.

In northern Germany, the Jewish communities were small, but that didn't save them. In the spring of 1350, the Jews of the Hanseatic cities who had escaped death at the stake were walled up in their houses, where they died from starvation and suffocation.

Most often, however, Jews were burned. Sometimes they were taken to the Jewish cemetery and into a windowless wooden building, which was set on fire. On other occasions, Jews were burned in their own houses so they could be accused of starting the fire themselves and the perpetrators would not have to prove the Jews' guilt. If anyone escaped, bystanders often stood ready to beat them with sticks.

Sometimes the proceedings were even more gruesome. In Narbonne, condemned Jews were first torn by red-hot pincers, disembowelled and had their hands chopped off before being burned.

At other times, the Jews themselves chose to die with dignity. Hebrew writings tell of how some Jews volunteered to be burned as martyrs; the Christians dug a grave in which a fire was lit, and the Jews of the town then gathered around the flaming pit and performed a ceremonial dance before accepting their fate and allowing themselves to be burned alive.

SCHOLARS WERE SCEPTICAL
Most Europeans who attacked Jews undoubtedly believed that the Jews were indeed to blame for the Black Death. But it was one thing for the uneducated masses to convince themselves and each other of this

Simon beatus videtur pueri. que ob miraculorum frequenter appellatur. Anno ab incarnatione verbi septuagimo quarto supra mellefimo quatercentum hebdomada in indictione cunctis necesse est xpi marit efficit. Iudei enim ea in urbe regentes pascha suo more xpiam non haberet immolandi curam sanguine in asinis suis in possent puerum in hunc more iudaica domum suam deportarunt. In sacra hebdomada anni die pasche luce tera ave per pascha puerum more sedes. cum non aderat gentior nec cara parēs. puerum thobias affuit bilan puerum curam etas non diu ter decem menses viderat. feni illico samuel ad edes. Cuius non ruit hic sanuelqz thobias vitalis moyses ysrabel atz mayer an synagoga len et pectora nudat. mu nevigare possit sudanoli appofuerunt et extensis brachijs pmo papula forpiat. mo cidentes. Inde qsqz forpice carne puellit. Sudibz deinde pacit pupugere. cu ille manus tiner crudeliter sanguine collecto hymenos cor more canetes. addit munus ba. accipias cere sic olim maiores nri. sic pfundant celo terra manqz xpicole. sic caput eius inter vlnas bera ad superos fecit uter. inde ad cenās pperarunt asinas de sanguine eius in xpi tedec. ed duo statim corpus in ppinqui domus cor flumen. ptecerit et pascha cu gaudio celebrarunt. de anen parēs gnati parvuli. postmodu cu in flumino mucnerunt. q illico vrbis pmo scelus pfor iohanes et talis nobilis barenlii aus legu doctor vifo puero exhorruit facit et plet deos apibendit et caules eos fugillam impones tormētis affricit eo ordine crimē reulerunt. aminatione cognito iudeos odignis supplicijs exterminavit. ptefulo epe vrbis Jo. hind getitici corp et sepulchro mād ar. multis cunctis cepit florere miracul. Inde ex oi xpiano xcurfus ad feni bntus parmit sepulchru est factus ut cu vrbis ipa cu miraculis et opibus mu Corpori vo ipius pueri videtur aues basilicam pulchram cretere



amid an utterly desperate situation, where everyone around them was dying; what people higher up in society thought about the matter was quite another, given that the Jews were dying of the plague as well as Christians. In his *Buch der Natur*, written during the plague, the scientist and writer Konrad von Megenberg mentioned that Jewish deaths in Vienna were so numerous that a new cemetery had to be built,

EYEWITNESSES

SEFER MINHAGIM / Nordhausen c. 1348-50

JEWS WENT TO THEIR DEATH SINGING AND DANCING

“They asked the burghers to permit them to prepare for martyrdom. They joyfully arrayed themselves in prayer shawls and shrouds, men and women. The Christians dug a grave at the cemetery and covered it with wooden scaffolding. The pious [Jews] asked that a musician be hired to play dancing tunes so they should meet the presence of God with singing. They took each other by the hand, men and women, and danced and leapt with their whole strength before God. Their teacher, Rabbi Jacob, went before them; his son, Rabbi Meir, brought up the rear to see none should lag behind. Singing and dancing they entered the grave ... [T]hey set fire to the scaffolding. They died all of them together and not a cry was heard.”

rejecting the theory that the Jews were responsible for the plague. Other scholarly writings of the time do not mention the Jewish theory at all. Some, such as Alfonso of Cordova, wrote about the possibility of a malicious conspiracy, but without referring to the Jews. Since the learned writers could hardly have been unaware of the conspiracy theories that were rife among the population, their reluctance to mention them in their books suggests they did not take them very seriously. The scholars' silence may thus indicate that they considered the idea too ridiculous to be mentioned. But it is more likely that they simply wanted to avoid criticising the Jewish theory, which, to put it mildly, would not have gone down well with the population at large. Siding with the Jews during the horrors of 1348 and 1349 was a risky business.



Not only Jews had to pay for the ravages of the Black Death – begging monks and vagabonds also risked ending up on plague-stricken Europe's pyres.

in the 350 or so massacres of Jews unleashed by the plague. One of the consequences was a permanent shift in populations, including the concentration of Jews in Poland and Ukraine, which remained until the Nazi purges of the mid-20th century.

MONKS WERE TARGETED

However, the Jews were by no means the only ones to be made scapegoats for the plague. Other groups of the population, distinguished in one way or another by their dress or behaviour, were also accused. On 17th April 1348, when an official from Narbonne sent a report on the impending plague epidemic to the city council of Girona in Catalonia, he also theorised about the cause of the disease: the plague was spread by foreign beggars and vagabonds, probably sent by France's main enemy, the English.

Three days later, the governor of Roussillon and Cerdagne in the Pyrenees wrote to his king, Peter the Ceremonious of Aragon, complaining that the spreaders of the plague were travelling about disguised as penitent pilgrims. And in May 1348, two Spanish monks received a letter from the authorities in Catalonia warning them against travelling through the area because it was known that in many places people were being stopped, interrogated and imprisoned on trifling pretexts. Especially clergymen, because there were suspicions that men disguised as clerics were infecting the water with poison.

PRIESTS DISLIKED BEGGING

Pilgrims and travellers, like the two monks, belonged to a section of society that was alien and closed to the general population. They wore different clothes that made them stand out from the crowd, and they had an aura of learning about them that also aroused suspicion among the population. It was therefore easy to spread the idea that these mysterious, religious strangers had evil intentions.

The cities' own clergy also viewed travelling pilgrims and mendicant monks as competition; it was the job of the begging brothers to move among ordinary people not only to preach and proselytise, but also to collect money for their monastic orders. When these monks received alms from the townspeople, there was less money left over to donate to the local churches, much to the chagrin of the parish priests. Many ordinary people also looked askance at the monks' begging and regarded them as freeloaders.

Throughout much of Spain, Arabs were suspected of being behind the plague, too, while many people turned their attention to one of society's most marginalised groups: lepers. They had long been viewed with great suspicion and as late as 1346, just a few years before the plague reached

JEW-KILLING BEGAN BEFORE PLAGUE

However, some did their best to stop the madness. Among them was the city council of Cologne, which wrote to its colleagues in Strasbourg and elsewhere urging them not to act rashly:

"In any case we are still of the opinion that this mortality and its attendant circumstances are caused by divine vengeance and nothing else. Accordingly we intend to forbid any harassment of the Jews in our city because of these flying rumours, but to defend them faithfully and keep them safe, as our predecessors did – and we are convinced that you ought to do the same."

In Strasbourg, however, there was little sympathy for the objections raised in Cologne, and few succeeded in softening public opinion.

At the same time, there were examples of those at the top of society preferring to fan the flames rather than let reason prevail. In May 1349, Landgrave Frederick of Thuringia wrote to the town council of Nordhausen to say that he had burned all

the Jews in his town in honour of God and that the people of Nordhausen should do the same. Other leaders saw the persecutions as an opportunity. For example, Charles IV of Luxembourg – later emperor of the entire Holy Roman Empire, but at the time king of Bohemia – offered the margrave of Brandenburg a choice between the three best Jewish houses in Nuremberg "when there is next a massacre of the Jews".

Fear of the plague – and therefore of the Jews – gradually became so widespread that the massacres overtook the spread of the plague across Europe. Many believed that the Jews had to be killed before they

could poison the drinking water. In Nuremberg, for example, one of the few cities to escape the plague, 562 of the city's Jews were executed in December 1349.

Combined with the many deaths caused by the plague, the massacres completely destroyed a large number of Jewish communities. In total, historians estimate that 60 large and 150 smaller Jewish communities across Europe were wiped out

4,000

– or perhaps as many as 16,000 – Jews had been expelled from England by 1290.

TECHNOLOGY.....

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Nobles wanted to protect the Jews

Europe's rulers often relied on Jewish financiers, and in some places they tried to protect Jews from abuse. Duke Albrecht of Austria (left), for example, tried to save the local Jews by gathering them at his castle in Kyburg. For a

while he succeeded in protecting them, but discontent among the population grew until people threatened to storm the castle. Albrecht gave in and all 330 Jews he had hidden were burned on 18th September 1349.

“In 1321, 160 lepers in Languedoc had been burned”

Europe, King Edward III had banned lepers from entering London. The reason was that they were suspected of wanting to infect others so they could have some company in their isolated lives. A quarter of a century earlier, in 1321, 160 lepers in Languedoc had been burned at the stake – accused of poisoning the drinking water at the behest of the Jews. So, it seemed only natural to accuse lepers of having a hand in the plague’s torments, too.

CAKES LED TO ACCUSATIONS

Even when not directly accused, Jews were often allegedly involved somehow; during the ravages of the plague, people accused of spreading the disease often confessed that they had been ordered by Jews to carry out their treacherous acts. One alleged plague spreader from northern Germany, for example, claimed that a Jew had bitten him on the bottom to make him obey.

But there were also allegations of well poisonings in areas where no Jews lived. In Sweden, where there had never been any Jewish communities, the town council of Visby on the island of Gotland issued a letter some time around 1350 in which it reproduced the confessions of nine “villains, poisoners and traitors to all Christendom” whom the council had arrested and interrogated. Among the nine accused was an organist whose confession included the claim that he’d poisoned all the wells in Stockholm, Västerås and Arboga, as well as all the springs, lakes and wells in the whole of Sweden.

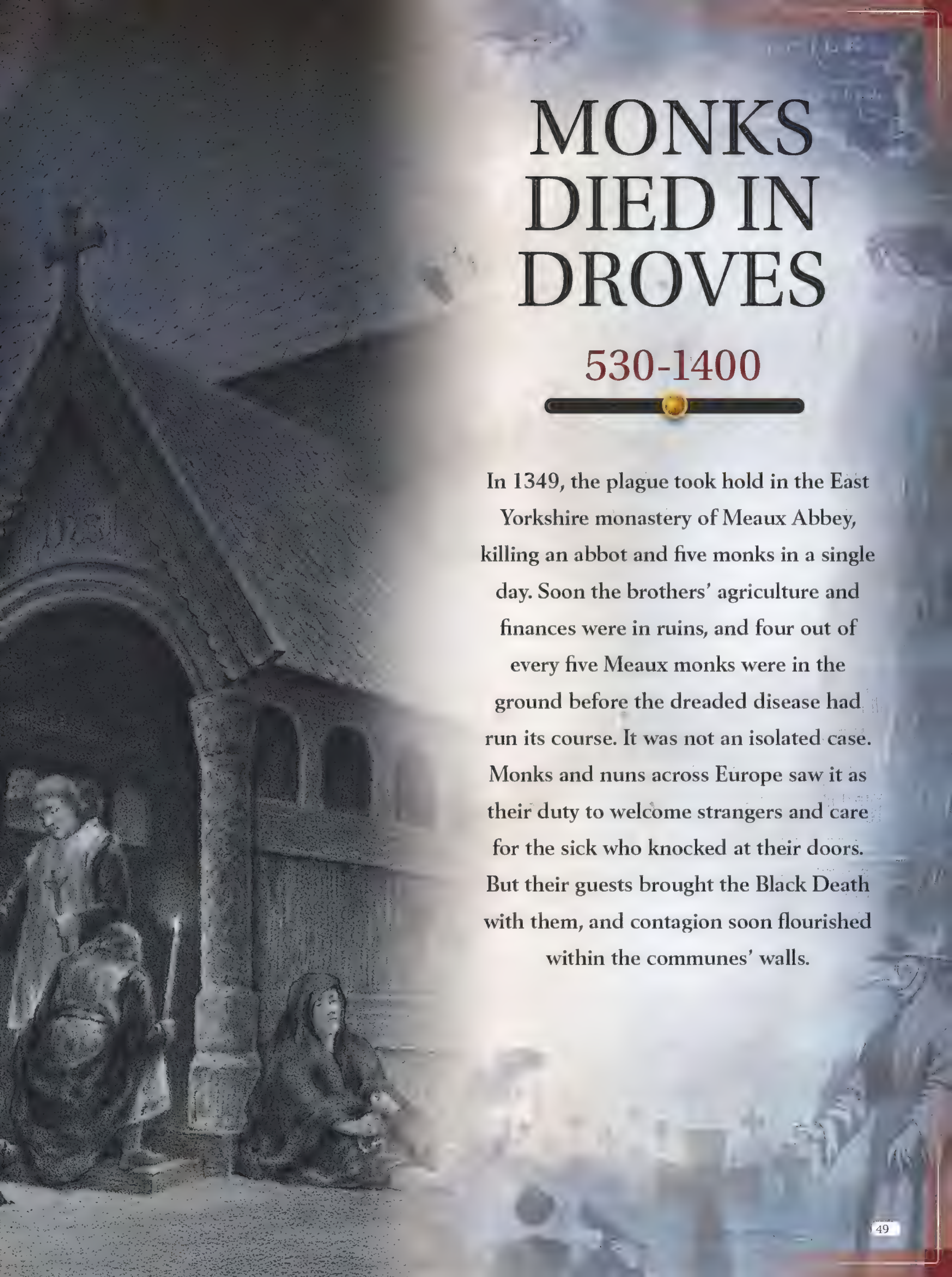
No one was safe from accusations of spreading the plague – especially those who already stood out. The Jews were the perfect scapegoats because they were different in terms of their customs, occupation and appearance. Moreover, like the travelling mendicant monks, they belonged to an international community in a Europe where few people ever left their native land. This aroused the suspicions of many frightened Europeans.

But people who stood out from the crowd far less obviously also came under suspicion. In Alsace, for example, a man was accused of spreading the plague simply because he had baked some strange cakes and decorated them with four faces. ■

Medieval people saw lepers as sinful wretches and many blamed them for the plague.





The background of the page features a detailed illustration of a church entrance. On the left, a large, dark stone archway leads into a dimly lit interior. Several figures in medieval clothing are visible: a man in a long robe stands near the entrance, while others are seated or kneeling on the steps. To the right of the archway, a woman in a dark, hooded garment sits on the ground, looking upwards. The overall tone is somber and historical, with a focus on the architecture and the people of the period.

MONKS DIED IN DROVES

530-1400

In 1349, the plague took hold in the East Yorkshire monastery of Meaux Abbey, killing an abbot and five monks in a single day. Soon the brothers' agriculture and finances were in ruins, and four out of every five Meaux monks were in the ground before the dreaded disease had run its course. It was not an isolated case. Monks and nuns across Europe saw it as their duty to welcome strangers and care for the sick who knocked at their doors. But their guests brought the Black Death with them, and contagion soon flourished within the communes' walls.

530-1400

530 Benedict of Nursia wrote *The Rule of Saint Benedict*.

1336 Pope Benedict XII permits meat four days a week.



1347 Black Death begins ravaging Europe's monasteries.

1349 Abbot and five monks die in a single day in Yorkshire's Meaux Abbey.

14th c. Monks and nuns set up hospitals for plague sufferers.

530 >>> 1336 >>> 1347 >>> 1349 >>> 1400 >>>

In the summer of 1349, the Cistercian monks at Meaux Abbey in Yorkshire's East Riding were convinced that disaster was just around the corner. The omens earlier in the year had been clear. One event, in particular, had literally shaken the monks.

"Our monks at Meaux were at Vespers [evening prayer] and had come to the verse 'He hath put down the mighty' in the *Magnificat* when they were thrown from their stalls by the earthquake and sent sprawling to the ground," one of the monastery's chronicles later reported. The earthquake, which was said to have been felt all over England, was not the only bad omen. A woman living close to the monastery had recently given birth to conjoined twins. The unfortunate infants soon died, but not before their arrival had spread terror among the local inhabitants.

On 12th August 1349, the monks' fears were realised. In the space of a single day, the abbot and five monks died of the plague, a previously unknown disease that

spread with lightning speed. According to the same chronicle, the blue-black plague stains spread under the skin of a further 17 monks and six lay brothers, all of whom died before the end of August. By the time the disease left the region, 40 of the monastery's 50 residents had succumbed to its ravages: 33 monks and all seven lay brothers were dead.

Monastic life at Meaux was in ruins. The monks' two leaders had died, and, as there were no longer enough hands to farm the monastery's lands and grounds, the surviving brothers lost their income. They were forced to lease their land, and in 1354, the monastery was given over to a royal commission.

Monastic inhabitants used rosaries to keep count during their many daily prayers.

The tragedy of the Abbey of Meaux was not unique: historians analysing mortality rates across 17 English monasteries concluded that

almost half of their residents – 363 out of 771 – fell victim to the plague when the Black Death struck in the mid-14th century.

MONASTERIES WERE EMPTIED

The plague also wreaked havoc on the other side of the English Channel. Monks and nuns throughout continental Europe were killed by the Black Death, with devastating consequences for those who remained alive within the monastic walls. Most of the orders owned significant tracts of land and suffered when the plague killed their brethren and the peasants who had helped them cultivate and tend their fields. Some monasteries were forced to close, with their survivors reluctantly moving on to other areas.

Academics have struggled to build a complete picture of the plague's impact on monasteries across mainland Europe.

Evidence shows that the disease affected at least 97 of the 5,000 or so establishments, but given the devastation wreaked on England's monasteries, it seems likely that the plague destroyed far more continental monasteries than is documented.

The plague killed every occupant in some monasteries in Germany, France, Sicily and England. Elsewhere, only a few survived. In the southern French city of Maguelone, only seven out of 160 monks escaped the Black Death. It was a similar story along the coast: just seven out of 140 Dominican monks in Montpellier survived, and only five out of 20 Augustinian monks in Perpignan.

The plague hit the monasteries hard because of the brothers' hospitality, which brought all kinds of visitors – from impoverished pilgrims to imperial delegations – through the abbots' gates. Visitors often brought the contagion with them. Worse, the monasteries had a tradition of caring for the old, sick and homeless, which made them even more vulnerable to the Black Death.

BRETHREN CARED FOR THE SICK

One of the plague's victims was a Carthusian monastic order in southern France. Out of 36 brothers, only the monk Gherardo was left alive. He had braved the danger of infection and the miasma of disease in the monastery's infirmary, steadfastly caring for the afflicted monks. In doing so, Gherardo was following a centuries-old dogma adhered to by most European monasteries, which stipulated that caring for the sick was one of a monk's principal duties.

This obligation was just one of many included in *The Rule of Saint Benedict*, which was written in 530 by the pious monk Benedict of Nursia, who founded the



The medallion of Saint Benedict was worn around the necks of Benedictine monks.



BENEDICT OF NURSIA 480-547

FATHER OF MONASTIC RULES

■ As the monks rose in the night for the first of the day's services, they may have thought of Benedict of Nursia. In 530, the pious monk wrote a set of regulations collectively known as *The Rule of Saint Benedict*, which, among other things, dictated that monks should gather at fixed times seven times a day to pray. Benedict founded Europe's largest monastic order, the Benedictines. He also

established the magnificent Italian monastery of Monte Cassino, where he wrote the text that became the foundation for much of monastic life in Europe. As a young man, Benedict studied in Rome but was disappointed by life there and left. He then lived as a hermit for three years in a cave in Subiaco, east of Rome before gathering the first Benedictine monks under him.

Founder of the Benedictine Order – Wrote the monastic rule book – Built Monte Cassino



Monks and nuns were particularly hard hit by the plague because they were obliged to care for the sick.

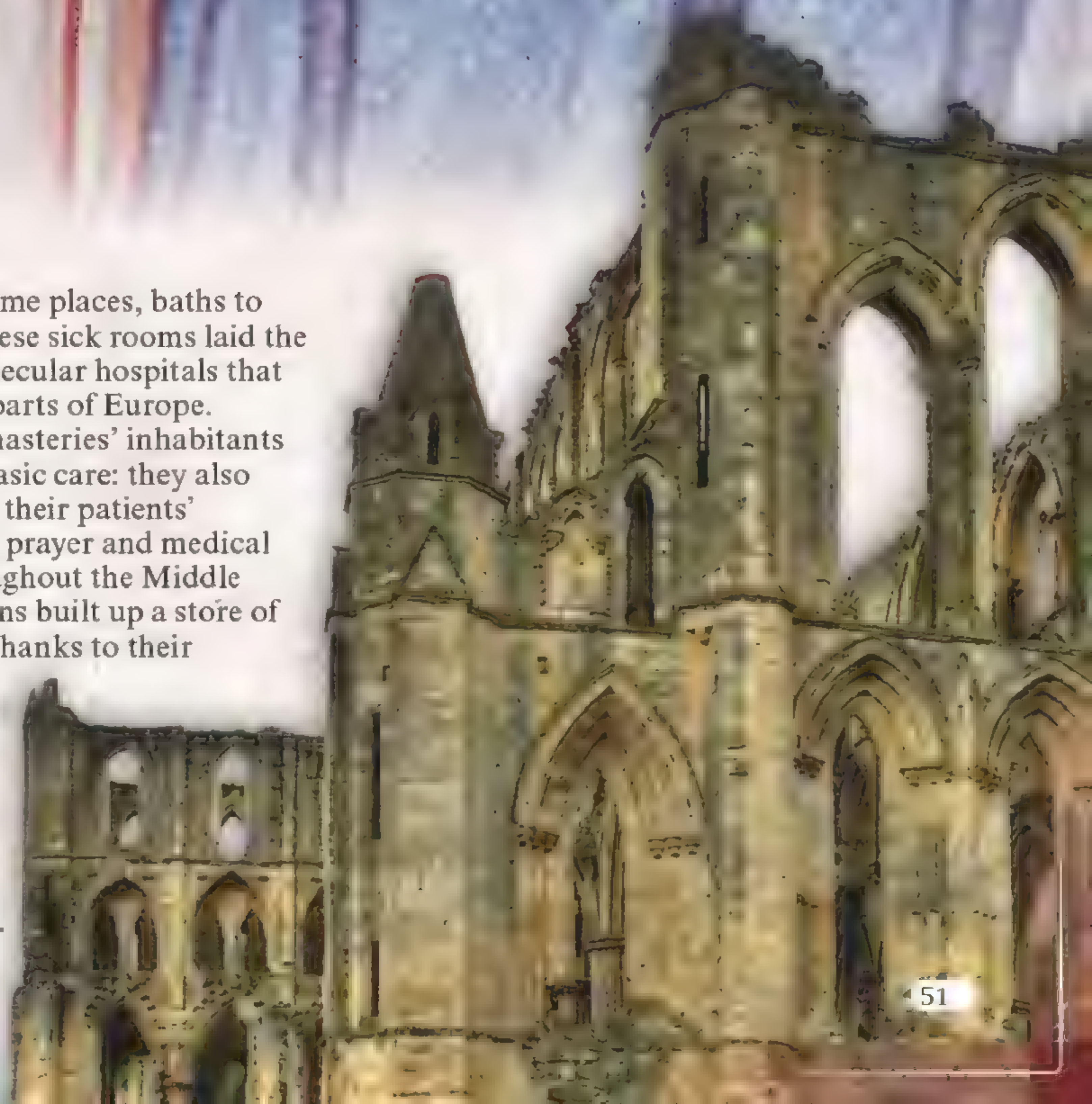
Benedictine Order and established the Monte Cassino monastery south of Rome. Erected on a mountain ridge, the building towered over the landscape and housed the devout monk as he formulated his book of precepts governing monastic behaviour, tasks and daily, hour-by-hour routines. *The Rule* included strict instructions about diet, clothing, reading materials, hairstyles, sleep and caring for the sick. It became the foundation for monastic life in much of medieval Western Europe.

In the High Middle Ages, from 1000 to 1300, larger monasteries established hospitals or wards where monks and nuns could isolate and nurse the sick. These wards were often furnished with large windows to let in plenty of light and fresh air, beautiful wall paintings to distract the

bedridden and, in some places, baths to improve hygiene. These sick rooms laid the foundations for the secular hospitals that later arose in many parts of Europe.

However, the monasteries' inhabitants didn't just provide basic care: they also endeavoured to cure their patients' afflictions – through prayer and medical interventions. Throughout the Middle Ages, monks and nuns built up a store of medical knowledge thanks to their collections of herbology books

The monks at Rievaulx Abbey in Yorkshire followed the Cistercian order's strict discipline.



MONKS KEPT BUSY AROUND THE CLOCK

Benedict urged monks to stay busy and do God's work. Consequently, the brothers' daily life featured a packed schedule of services, prayers and work in the monastery farm or long evenings in the scriptorium bent over wax tablets and manuscripts.

Gold- and silver-plated reliquaries, were made in the monasteries' workshops.



Beekeeping was a key part of monastic farming. Monks used willow and hazel to weave beehives.



The monks drank light beer and watered-down wine.

Candles made from wax from the monastery's beehives illuminated the texts on dark winter evenings.



> and ancient medical treatises. They studied the therapeutic properties of different plants and often grew hundreds of medicinal herbs in their monastery gardens. Excavations at the Danish monastery of Æbelholt Kloster revealed that the inhabitants were cultivating *hyoscyamus niger*, a rare member of the poisonous nightshade family. Commonly known as black henbane, the plant can soothe coughs and relieve pain but is lethal when taken in large doses. But despite their knowledge, monks and nuns frequently called on the services of local doctors when tending to their patients.

SANG THEMSELVES HOARSE

Compared to peasants and labourers, monastics lived a privileged life – the abbey offered a safe environment, a bed to sleep in and food on the table every day. But monastic life was still hard.

Daily life was spartan, governed by exhausting and strict routines. For example, every day, the monks had to get up in the middle of the night for a two-hour Vigils service in the freezing chapel. The Cluniacs – an offshoot of the Benedictine order – had to ring church bells so heavy that the monks suffered from bad backs. Services

and masses, where the monks had to recite up to 200 psalms a day, took a toll on the voice, while poor light, dust and night offices strained the eyes so much that some monks lost their sight. In addition, the harsh, monotonous diet resulted in digestive problems for many.

MONKS WORKED HARD

The monastery's daily life ground to a standstill if the inhabitants were afflicted with too many ailments. The small communities were designed to be self-sufficient, with each monk performing numerous tasks. In addition to the overriding goal of monastic life – to unite with God through pious worship – the monks spent their days cultivating the land and processing the harvest. They brewed beer and wine, bred honeybees and maintained the monastery's buildings. The monks also spent long hours in scriptoriums, meticulously copying religious texts or other works from the shelves of monastic libraries. Some brothers also wrote new documents.

Perhaps inevitably, the monks were sometimes overwhelmed by all the rules,

and more than one succumbed to the pressure and burdens of monastic life. Jocelyn de Brakelond, a monk from Bury St Edmunds Abbey, a Benedictine monastery in Suffolk, recalled hearing his monastic superior, Abbot Samson, sighing loudly one night. When Jocelyn anxiously asked what was wrong, the tormented abbot listed all

the weighty matters on his mind, including the monastery's finances. According to the chronicle, when Jocelyn heard the abbot's problems, he raised his hands to heaven in gratitude that he didn't have all these burdens on his shoulders.

Abbots had overall responsibility for the monastery and therefore had to decide how

the monks should overcome crises such as disease, crop failure, decay or debt. These were precisely the problems Samson took on when he took the abbotsip of Bury St Edmunds Abbey. The worries took a visible toll on him. In the chronicle, Jocelyn describes how the abbot had only a few grey hairs in his red beard when he took up his post, but when he saw his reflection a few years later, his beard was completely white. Samson admitted that he would

700

hospitals were built by various monastic orders in England during the 14th century.



Wooden boards covered with wax were used as notebooks.



In the scriptorium, monks meticulously copied the Bible using ink and parchment. Some Bibles were decorated with elaborate covers of gold adorned with precious stones.



The brothers grew medicinal herbs, such as sage, in the monasteries' herb gardens.

Some orders allowed monks to wear bonnets on cold winter days to keep their heads warm.

Cistercian monks had to go barefoot, but most other orders wore leather shoes or sandals



The monks' robes were made of wool and coloured black, brown or grey with vegetable dyes.

never have taken over the monastery's management if he had known beforehand what to expect.

The abbot wasn't the only monk to feel so burdened. Matthew, a Cistercian monk from Rievaulx Abbey, suffered such severe abdominal discomfort that he compared them to labour pains. And his head ached so badly that he felt like a razor was slicing the skin from his scalp. At night, he tossed and turned sleeplessly on his modest bed. A senior monk within the 12th-century, North York Moors monastery, he was quite sure about the cause of his suffering: his duties were taking their toll on his body and soul. One of his tasks was to lead the community's prayer meetings, including the night services, which he believed triggered his insomnia.

BLEEDING LED TO FEASTS

To boost their health, monks spent their free time walking in the countryside around the monasteries. Some also practised archery or rode the monastery's horses as a distraction from the daily grind.

Others took a more bloody approach to keeping the body in balance. Bloodletting was used to prevent disease, and abbots regularly gathered their monks in groups to

draw blood – in some monasteries, as often as nine times a year. There was even a special bloodletting house attached to the infirmary in some monasteries.

The monks seemed to look forward to the event, which offered a break from the monastic routine. According to Jocelyn of Brakelond's chronicle, the brothers at Bury St Edmunds Abbey used the sessions to gossip, which was usually forbidden. After they had given blood, the monks were served a large meal that sometimes included meat to aid their recovery.

Eating meat was normally forbidden under *The Rule of Saint Benedict* unless a monk was sick or particularly weak. However, as early as the end of the 12th century, some monastic orders began to bend the rules on meat, and in 1336, Pope Benedict XII authorised Benedictine monks to eat meat four days a week outside of fasting periods, such as Lent.

Meat dishes were banned initially because medieval monks believed that

chicken thighs, beef brisket, lamb shanks and the like could arouse sexual desire, thus diverting the brothers' thoughts from the spiritual life. Monks and nuns took a vow of chastity when they joined their religious communities, and their superiors worked hard to curb their natural urges by prescribing cold baths and ensuring that they didn't witness the mating of the monastery's livestock. But some monks and nuns were still troubled by sexual thoughts, which were considered sinful for those in holy orders. Some resorted to extreme measures to suppress their carnal desires. The Carthusian monk John Homersley, who lived in 15th-century



“ He climbed to the monastery’s belfry, tied the bell-rope around his neck and jumped ”

Golden Epistle], which was penned around 1140, the monk William of St-Thierry described the importance of a frugal monastic diet.

“Black bread and plain water, mere greens and vegetables are assuredly no very delectable fare: what does give great pleasure is when, for the love of Christ and the desire of interior delight, a well-disciplined stomach is able to satisfy itself with such fare and be thankful.”

In many places, monks had to make do with a single daily meal in winter and two during long summer days. It was also frowned upon to stuff the stomach with food just before religious ceremonies.

Indeed, the Knights Templar founder Bernard of Clairvaux warned that monks who attended Vigils while their food was still being digested were likelier to groan than sing a clean tone in the choral service.

TRAGEDY IN THE BELFRY

Strict monastic regulations took their toll on some monks – especially the most fervent ones.

According to an account by Prior Caesarius von Heisterbach, Baldwin, a 13th-century monk at the German monastery of Rittersheim, was a particularly zealous brother – abstemious, pious and faithful to authority. If he breached the order’s rules, even in a minor way, he was plagued with remorse and severe headaches.

One night, the strictures became too much for Baldwin. With a violent headache tightening like a vice around his temples, he climbed to the monastery’s belfry, tied the bell-rope around his neck and jumped. Awakened by the bell’s discordant clanging, the sacrist rushed to the scene and cut the rope. But while he managed to revive Baldwin, the fervent brother had suffered a catastrophic lack of oxygen to the brain and never recovered his wits.

Monastic life could also cause other mental problems. Von Heisterbach claimed that many monks suffered from depression and apathy, which he called *accidie*. According to the prior, this mental health condition could distract a monk during periods of worship or make him lazy, angry

or cowardly – in the worst cases, it had even been known to lead to suicide.

SOME MONKS LIVED LIKE HERMITS

The life of Carthusian monks was particularly uncompromising. The white-robed brothers strictly adhered to a highly ascetic form of monastic discipline. Unlike other orders, who lived in dormitories and slept on straw mattresses with woollen blankets, the Carthusians spent most of their time alone in individual monastic cells, where they slept, ate, prayed and meditated. The monks rarely left their rooms and had virtually no contact with society beyond the monastery walls. They only gathered for meals on Sunday and when their abbot called them to services or to bury one of their brothers.

Carthusians never bent the rules like other orders. And the ban on meat even applied to the sick, who might have benefited from a more rounded richer diet. They also strictly enforced rules of absolute silence. *The Rule of Saint Benedict* valued silence as its author believed chatter and gossip would interfere with the monks’ religious contemplations. As a result, most

Ringling the heavy church bells was hard on the monks’ backs. Many monasteries held services seven times a day.

London, even self-harmed, hoping that inflicting bodily wounds on himself would cure the sickness in his mind.

If a monk dared to touch others or allowed others to touch him, he was not allowed to tell his fellow monks about the sin because it might shock or upset them. According to the order’s rules, only God or a priest could listen to the monk’s confessions.

MONKS HAD A STRICT DIET

Meat was far from the only thing banned from the monks’ daily diet. The orders’ leaders feared that a highly varied, fatty and spicy diet would distract the brothers from their essential religious duties and tempt them into the sins of gluttony and sloth.

Meals, therefore, consisted of simple staples made from raw ingredients sourced from the monastery’s farms, such as bread, porridge, cheese, eggs, honey, fresh and dried vegetables and seasonal fruit. To accompany their meals, the monks would drink homemade light beer from the monastery’s barrels or watered-down wine, neither of which had a high alcohol content. In his text *Epistola ad fratres de Mon-te-Dei* [*Letter to the Brothers of Mont-Dieu* or *The*

62 out of 102 nuns caring for the sick in a Paris hospital died of the plague in 1347.

Nuns and monks were obliged to receive patients as they would receive Christ himself.



monastic orders had certain restrictions on conversation within the monastery. For example, brothers were forbidden to talk during the day's work, as well as in the dining room, dormitory and chapel. Instead, the monks listened to Bible readings and the sound of bells that summoned them to their different offices. The only communication permitted during these times was sign language, although even this was considered too much by some. The royal clerk Gerald of Wales, who visited Christ Church Cathedral Priory in Canterbury around 1180, noted the vigorous gesticulation going on in the refectory and compared it to a vulgar mime show. As he tartly observed in his work *De Rebus a Se Gestis*, a moderate level of conversation during meals would have been far less disturbing.

The monks were ordered to sing psalms while working in the fields, gardens, scriptorium or workshops to stem idle chatter. Only the abbot and prior were exempt from the ban on conversing. Some monastic orders relaxed the prohibition of speech a little, but the Carthusians went the other way: apart from on Sundays and feast

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Monks copied ancient works

The scriptorium was the monks' most important workshop. Before the printing press was invented in the 15th century, monastic scribes copied the scriptures with pen and ink. Producing Bibles was their main task, but the

monks also copied the classical Greek and Roman works by literary masters like Plato, Aesop and Homer. In this way, the ancient works lay hidden in monastic libraries until Renaissance scholars rediscovered them.

days when the Carthusian monks could talk for an hour, they communicated exclusively by sign language. The order's leaders did allow a few exceptions, for example, when a monk needed to be comforted following a death among his neighbours.

BLACK DEATH WAS MERCILESS

But the brothers' rules and piety counted for nothing once the Black Death arrived.

Their prayers and psalms could not fend off the plague. In the end, the brothers were as defenceless as everyone else. A few lucky monasteries, isolated in remote mountainous regions, managed to avoid being infected. But across most of Europe, monks were forced to bury one brother after another or flee the plague-ridden monastic houses to start a new secular life outside their walls. ■







DEATH IN THE ARTS

1350-1563

Death is a veiled woman hurling deadly arrows left and right. That is how a painter in Lavaudieu in France chose to depict the terrible plague that had just ravaged Europe in around 1355. Arrows became a recurring symbol of the plague and appeared in artistic depictions of the Black Death throughout the late Middle Ages. Another favourite motif was the Dance of Death, in which skeletons lead a long line of people to the grave. The taste for the macabre also resulted in funerary monuments depicting the deceased as a rotting corpse.

1350-1563



1350 The French poet Gilles de Muisis describes daily life during the plague.

1355 In France, death is portrayed as a woman flinging arrows.

1372 The Virgin Mary is shown as a protector against plague.

1425 The Dance of Death is painted for the first time in the church of Holy Innocents in Paris.

1435 The Earl of Arundel is immortalised, depicted as a rotting corpse.

1563 The Catholic Church bans paintings of Mary as a protector.

1350 1355 1372 1425 1435 1563

A veiled woman throwing arrows, a hairy, bat-winged creature attacking a praying man, and a scythe-wielding skeleton standing on an ox-drawn cart, crushing a terrified population beneath its wheels. These are just some of the examples of how death was portrayed in paintings and illustrations after the plague had finally released its grip on Europe.

In this way, the unimaginable suffering of the Black Death also left its mark on art. The personification of death appeared more frequently and was portrayed in far more horrific ways than before, and painters and sculptors alike increasingly began to depict the dead and dying. The Black Death had plunged Europe into a gloomy and pessimistic darkness, and in many ways, art reflected this state of mind.

The horrors of the plague were expressed in paintings, woodcuts and sculptures, as well as in literature through realistic descriptions of death, disease and suffering. Some works dealt with scenes of daily life as it appeared during the plague, with its funerals, visits to doctors and religious processions. Others wanted to depict the horror that people felt, and this was expressed in images of rotting corpses or Death himself striking down the living.

ARROW BECAME SYMBOL OF PLAGUE

Still others, however, focused on the hope that continued to exist among the living – such as images of the Virgin Mary or St Sebastian protecting people from the indiscriminate death that was the plague's

trademark. And the plague itself was also depicted in the works of art.

Countless images and woodcuts show God, angels or demons hurling spears representing the plague at cities or people. There are also examples of messengers of death attacking with lances, swords, axes or whips. But more than any other weapon, it was the arrow that came to symbolise the Black Death as the disease that seemingly fell from the sky and brought death and destruction to Earth. Its arbitrary nature

The Lübeck Dance of Death painting was a 30-metre frieze in the church of St Mary in Lübeck depicting 24 people dancing with Death.

is depicted in a fresco at Lavaudieu in France, for example, where the plague is personified as a woman with her eyes covered and her hands full of arrows.

The portrayal of death as a living entity was already common before the plague hit Europe, but with the ravages of the Black Death,

it took on a stronger and often more morbid form. Previously, it had often been depicted as a small person, typically a woman, who was defeated by Christ, the bringer of eternal life. But after the plague, the diminutive woman evolved into a fearsome, invincible and savage figure, hunting her prey.

The encounter between the living and the dead is another motif that became widespread during the Black Death. An oft-repeated theme is that of the three living meeting the three dead. This was known before the Black Death, but became more common during and after the plague. The image depicts three living, well-dressed and happy travellers who encounter three corpses in varying degrees of decomposition. The scene was typically



The funerary monument from 1547 in the church of Saint-Étienne in Bar-le-Duc, France, shows a naked, rotting corpse with flesh falling off the bones.

accompanied by verse and the message was essentially: we, the dead, were once what you are now; what we are now, you will be. In the post-Black Death era, the image appeared in churches and cemeteries across Europe from central Italy to northern England, and its popularity probably stems from its practical and easily understood message. It was a *memento mori* – remember, you are going to die. People therefore needed to repent their sins and change their lives, because before long they, too, would be counted among the corpses.

In Danse Macabre images from the same period, however, there was no opportunity to change one's life for the better. They typically featured a chain of 24 or 36 people who, in a series of dancing scenes, are led to their death by skeletons or corpses.

SAINTS PRAYED FOR MERCY

Death comes for everyone at some point, so the themes were not unknown before the Black Death. But the mercilessness of the

The Virgin Mary takes rich and poor alike under her cloak to protect them from the plague's arrows, shot from above by an angry God.

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Artists dropped like flies

The plague afflicted artists as much as labourers. It killed Ambrogio Lorenzetti, for example, the artist behind the painting of St Nicholas, and several other greats of the time. As a result, mostly only younger artists were left, so they

had to discover their own style. The plague also killed off many of the patrons whose taste had shaped art. They were replaced by new patrons with different tastes – a situation that characterised art for a long time afterwards.



“Snakes and frogs crawled in the partially decomposed body”



St Sebastian's arrows became a symbol of the plague's attack.

plague meant that the messages became particularly topical, as death could come at any time. Compared to images of Death itself or the dead, images of daily life during the Black Death are relatively rare.

However, there are pictures of visits to the sick, where the doctor typically appears in a hat and cape, holding a large glass bottle in which urine samples were analysed. The funerals that were so much a part of daily life are also depicted.

One of the most famous portrayals is an illustration in a manuscript by the French poet and chronicler Gilles Li Muisis. Dating from 1350, when the first onslaught of the plague had subsided, it shows a group of men carrying coffins or wrapped bodies to a mass grave while the diggers carry out their unpleasant work. The fact that there are not enough coffins for the bodies is just one sign of the plague's ferocity.

The sick are rarely depicted themselves, but appear with all their suffering in the background of some images, in which saints plead with God for mercy on behalf of mankind.

UNDER MARY'S CLOAK

The idea of using saints as protectors against evil was already common before the Black Death hit Europe, but during the plague the concept became more widespread.

The Virgin Mary, as the mother of Christ, had long been seen as the most powerful, so she became humanity's foremost protector when it was attacked by something that seemed likely to wipe everyone out. She was the personification of mercy, and she appears in the Catholic image known as the *misericordia*, meaning merciful Mary.

The earliest known of these images was painted in 1372 by the Italian painter Barnaba da Modena in the cathedral of Genoa. The painting depicts the Virgin Mary as a gigantic figure dressed in a wide cloak, which she holds around or above a city or group of people kneeling in prayer. From above, God, angels or demons fire arrows, which break on or deflect off the cloak. Some *misericordia* show people outside

Mary's cloak being hit by the arrows. However, the fact that Mary was obstructing God's will in this way was a problem for the Church, so the image was suppressed in the mid-16th century after the Council of Trent, a series of meetings held by Catholic Church leaders in response to the Reformation.

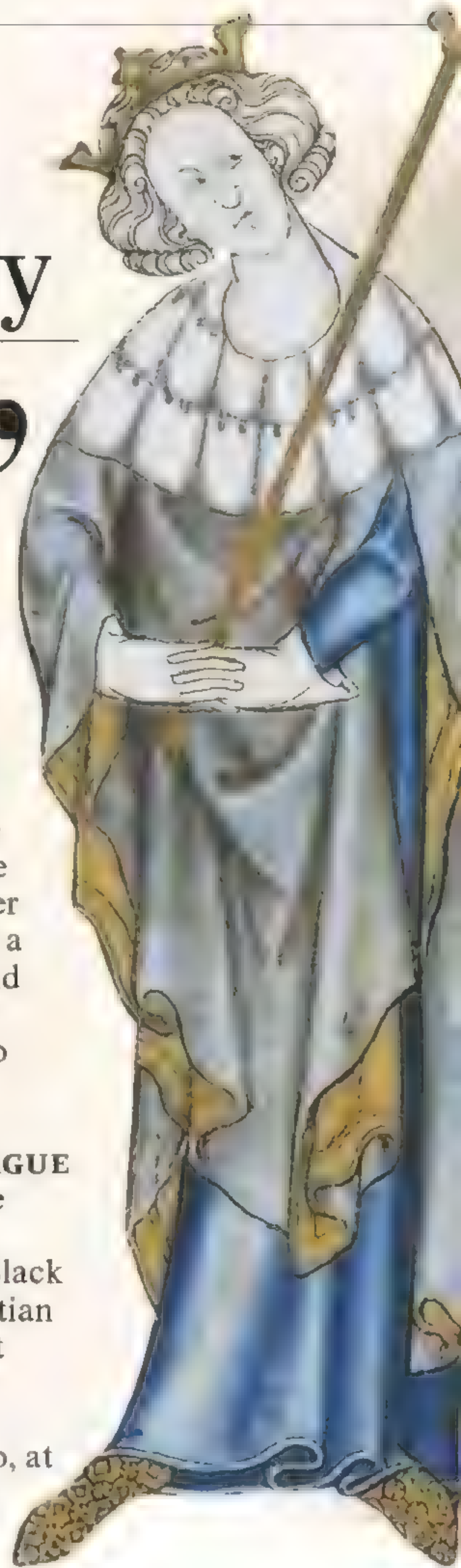
GOOD VERSUS PLAGUE

There were also some saints specifically associated with the Black Death, with St Sebastian being one of the most prominent.

Sebastian was a Christian soldier who, at the beginning of the fourth century AD, was about to be executed for his faith. The executioners rained arrows on him and left him for dead, but he survived and slowly regained his strength. When he finally recovered, he returned to confront the pagan emperor, only to be brutally beaten to death. He is associated with the plague because he survived a hail of arrows – and arrows became the most powerful symbol of the plague.

In the few earlier depictions of Sebastian, he appears as an older, bearded man. But after the plague ravaged Europe, he was transformed into a very young man, shown almost naked, tied to a stake or pillar and pierced by anywhere from three to over 100 arrows, often around the pelvis, armpits and neck. These were the places on the body where the plague first manifested itself in those affected, because it caused the lymph nodes there to swell.

Sebastian is shown alone, alive and suffering stoically, like contemporary images of the suffering Christ. In this way, Sebastian was portrayed as a kind of self-sacrificing lightning rod for the arrows of God, and like a *misericordia*, an image of St Sebastian was used either as preventative protection against the plague or as a symbol of gratitude for having been



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statues of St Sebastian still stand today in Normandy, France.



spared. Chapels and altars dedicated to St Sebastian could be found all over central and northern Europe, from Oslo in Norway to Knockmoy in Ireland, and from Ragusa, now Dubrovnik in modern-day Croatia, to Normandy in France.

ROTTING CORPSES ON TOMBS

The Black Death also had a major impact on funerary art. During the outbreak of the plague, many people were buried in anonymous, unmarked mass graves. So, horrified at the thought of disappearing into obscurity, the wealthy began to ensure that their graves would be properly marked.

Not only that, but from around 1370, a new motif began to appear on tombs. Beneath a life-size carving of the fully clothed and stately-looking deceased, an image of a rotting corpse was carved, also life size. The sculpture was intended to ensure the status of the deceased for posterity and was also an expression of how focused on death people had become.

Historians have also interpreted the carved cadavers as signs of a growing acceptance of one's own mortality – fuelled by the plague's many victims. The fashion started in France, where the corpse was usually partially covered by a shroud, but it spread to England, where the figure was a naked, emaciated corpse. And in German-

speaking countries, it became even more macabre. Snakes and frogs crawled in and around the partially decomposed body.

In Italy, in particular, this fear of vanishing into obscurity also translated into support for architecture and art. Those who had seen whole families wiped out now made sure they were remembered. From 1363, there was a marked change in Italian wills, from giving small gifts to churches, monasteries or the poor, to supporting large building projects or works of art. Of course, not everyone could afford such things, but butchers, shoemakers, bakers

The image of three men facing three corpses was intended to provoke reflection and discourage vanity.

and blacksmiths were among the donors, so the phenomenon wasn't limited to society's higher tiers. As a result, names and coats of arms suddenly appeared on religious artefacts: paintings, candles, banners, altar cloths and windows. In this way, donors hoped not only to benefit in the hereafter, but also to be remembered and prayed for – in case they themselves were the next to be struck by the plague's black arrow. ■

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Dance of Death

The Danse Macabre is an artistic motif that emerged in the late Middle Ages and depicts the personification of death leading the living to the grave – regardless of their age, gender or status. The message is that death is omnipresent – no matter

what stage of life we're in or what status in life we hold, the Dance of Death unites us all. The images were intended to remind people that life was extremely fragile and that vanity in earthly life was therefore foolish.





SEARCH FOR A CURE

1347-1468

Bloodletting, resin and lily poultices, sour fruits, pious prayers to saints and dressings made from dead cockerels: these were just a small selection of the cures prescribed by medieval physicians for the plague. Doctors would don red glasses and beak-shaped masks filled with herbs before visiting the afflicted, carrying a cane with which to examine the sick person without touching them. But no doctor could win the battle against the Black Death. Things became so desperate that the Pope even defied Church law by authorising his personal physician to perform an autopsy.

1347-1468

1348 Planetary alignment triggers the plague, say Paris doctors.

1363 Pope Clement VI's physician publishes *Chirurgia Magna*.



1374 Milan expels all plague-stricken inhabitants.

1423 Plague patients are isolated on various Italian islands.

1468 The first quarantine station is built on an island near Venice.

1348 1363 1374 1423 1468

When the doctor entered the poorly lit room, he could immediately smell the rotten stench. That was despite breathing through a mask with an artificial beak stuffed with fragrant herbs such as mint, camphor and rose petals. The doctor hoped that the herb-based filter would prevent him from being infected by the air in the room.

The bedridden girl gasped as the doctor gently lifted the blanket away with a cane to reveal – as he'd expected – a massive bubo under her armpit. There was no doubt what was wrong with her, but on the other hand, the doctor had no idea what to do to treat the plague that had killed half of the town's inhabitants in recent months. At this stage, the doctor would usually call in a priest to give the sick girl the opportunity to receive absolution before death. But most priests had died from the horrific disease or otherwise fled the infected town.

All the doctor could do was to follow standard procedure. He could draw the patient's blood or cut the bubo open and either drain off the inflamed fluid or burn it away with a red-hot iron. Some doctors believed the abscesses should be smeared with a mixture of resin, crushed white lily roots and dried faeces. Others advised cutting a dead cockerel open along its back and placing it on the bubo. Deep down, however, the doctor knew that whatever his efforts, the young woman would be dead within a few days – and that he was at great risk of infection simply by attending her.

Scenes like this were commonplace throughout medieval Europe. Doctors were

faced with an epidemic of apocalyptic proportions. And there was nothing they could do about it.

MEDICINE WAS OUTDATED

When the plague struck European soil in 1347, medical science had been largely stagnant since the time of the Greek scholar Hippocrates in the fourth century BC.

Hippocrates is known as the founder of modern medicine. While his colleagues believed that diseases were supernatural and should be banished with prayers and spiritual ceremonies, Hippocrates used his senses to study the symptoms to find a physical cause. Only then would he prescribe his medicines. Hippocrates's methods included gathering herbs in the forests, preaching hygiene and advising his patients to rest to recover from an illness. However, despite

the Greek scholar's medical advances, many of his theories were flawed. For example, Hippocrates believed that health was affected directly by the weather.

One of the few to build on his knowledge was the Greek-born Roman physician Claudius Galenus, known as Galen. He himself experienced a deadly plague during his lifetime and concluded that the disease particularly affected people with a wild and uncontrollable temperament. Galen also continued the Greek tradition of using bloodletting as a cure.

CHURCH CONTROLLED SCIENCE

During the outbreaks of plague that occurred in the Middle Ages, physicians turned to the ancient works of Hippocrates and Galen in search of both explanation and cure for the

Autopsies on corpses were forbidden, so medieval medical students cut up pigs to study their organs instead.



Medicine had stood still for a millennium. Medieval doctors continued to follow the ancient writings of Hippocrates (right) and Galen (left).

epidemic. Doctors had little opportunity to further develop their knowledge from ancient sources, because the Church controlled all teaching in universities. For example, in the early 14th century, Pope Boniface VIII banned the study of corpses. Backed by the Church, the renowned Faculty of Medicine in Paris declared itself opposed to surgery, and the University of Montpellier – the foremost of its time – had only one practical anatomy class every two years. On these rare occasions, expectant medical students stood on each other's shoulders to get a good view of their teacher opening a human stomach and inspecting its contents.

PLAGUE WAS GOD'S PUNISHMENT

Despite Church opposition, medieval scholars tried to pool their knowledge and advice for combatting the plague via collections known as plague treatises. At least 20 of the 280 plague treatises uncovered by historians were written during the first epidemic in 1347-1351. A further 75 were written before 1400.

The plague treatises revealed that the cause of the Black Death could be found in astrology, science and, above all, religion.

One of the writers who explained the plague as God's punishment was the notary Gabriele de' Mussi from the small Italian town of Piacenza. The deadly disease had struck the town in early 1348. Here the streets were almost deserted, while the stench of decomposition and disease seeped out of the open doors and windows of abandoned houses. Few dared to visit the sick for fear of the contagion that spread death across Italy.

De' Mussi covered his mouth to avoid inhaling the stench as he hurried through the narrow streets of Piacenza. Later, hunched over his papers, he carefully recorded his observations of the city on the sheets of paper that would become the *Istoria de Morbo* (*History of the Disease*), a work on the plague's arrival in Europe. He used the word 'bulla' to describe the buboes – a word that can mean a swelling but was also used to describe the papal seal or a papal decree. Bulla, according to de' Mussi, was an appropriate term for the foul-smelling swellings because he saw them as a sure sign from God – an omen of imminent death. In

TECHNOLOGY

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Dice games were banned

The Church believed that sinful people attracted disease, while piety drove it away. To combat the plague, the authorities introduced several edicts, such as a ban on making, playing and selling dice. Contemporary accounts

reported how priests watched with satisfaction as artisans cut rosaries from the material they would normally use for dice. Lawmakers also tightened rules on infidelity, swearing and observing religious holidays.

“He could draw the patient’s blood or cut the abscess open”

his writing, de’ Mussi distinguished between two distinct symptoms of plague. One was the buboes, the other was large dark purple, red, orange or blue-black swellings under the skin. De’ Mussi called them the “warning signs sent by the Lord”.

Plague sufferers often also suffered from blisters or blotchy discolouration of the skin. Severe cases could even leave a patient comatose, sleepless, apathetic or unable to control their movements. Stories spread telling of plague sufferers who became so delirious over a short period of time that they would climb on to roofs, for example, or shout nonsense from their windows.

“I am overwhelmed, I can’t go on. Everywhere one turns there is death and bitterness to be described. The hand of the Almighty strikes repeatedly, to greater and greater effect. The terrible judgement gains in power as time goes by. What shall we do?” de’ Mussi wrote in resignation.

Most treatises urged people to live moral lives in line with Church decree. Piety was the key to recovery, they claimed. People should dress modestly, refrain from such temptations as gambling and alcohol, and honour their parents as well as God if they wanted to avoid the Black Death. Priests noted that many lovers were suddenly keen to marry, while any disposable income increasingly ended up in the church’s coffers rather than being squandered on gambling and drinking.

However, in the fight against the plague, the head of the Church, Pope Clement VI, felt obliged to defy his own laws. He gave his physician, Guy de Chauliac, special authorisation to perform autopsies on plague victims, and the physician was among the first to distinguish between bubonic and pneumonic plagues. His examinations also revealed that the plague broke down the victim’s internal organs while filling the stomach with a black fluid.

PLANETARY PORTEND

In 1348, doctors at the University of Paris’s medical faculty issued a long report on the

Doctors tried to protect themselves by wearing red glasses while breathing through a beak-shaped mask stuffed with herbs.

“Lean, fat and ruddy-faced people were also threatened”

plague, which was read with great interest by their colleagues across Europe. The report opened with: “Concerning the Universal and Distant Cause. Therefore we say that the distant and first cause of this pestilence was and is a certain configuration in the heavens.” Astrology was one of the most recognised scientific disciplines of the Middle Ages and a cornerstone of medical training. Scholars believed that the position of the planets and stars in the sky had a major influence on human health, and naturally looked to the heavens for an explanation of the plague.

According to astrology textbooks, each planet had its own unique characteristics and could react violently if it came too close to another planet. The French doctors behind the plague report were also able to pinpoint exactly when things had gone wrong. Barely three years before the plague struck, at “precisely one hour past noon” on 20th March 1345, the sky had been the scene of an unfortunate and fatal conjunction of the planets Saturn, Mars and Jupiter. Saturn and Mars were planets with evil intentions, while Mars, like Jupiter, was also dubbed a hot planet. The aligning of the three planets created a catastrophic excess of heat and evil in the sky, which generated toxic vapours in the Earth’s interior and resulted in “many lightning flashes, sparks, and pestiferous vapours and fires throughout the atmosphere”.

According to the Paris report, the toxic air was responsible for the contagion: “Thus, the corrupted air, when it is breathed in, necessarily penetrates to the

heart and corrupts the substance of the spirit that is in it and putrefies the surrounding moisture,” the doctors wrote. To add insult to injury, they added that an earthquake in 1348 had released a further large quantity of poisonous air from the Earth’s core, meaning that rich and poor alike were now breathing in the dangerous fumes.

In their report, the doctors also presented an explanation as to why some people got sick and others remained healthy. They claimed that it depended on a person’s lifestyle and personality – a claim not far from what Galen had concluded 1,200 years earlier:

24 hours: the window in which doctors believed that bloodletting might save the patient.

“The bodies that are more susceptible to receive the stamp of this plague are those bodies that are hot and wet... Also [at risk] are: bodies that ... live by a bad regimen, indulging in too much exercise, sex and bathing.”

The doctors strongly advised against any activity that dilated the pores of the skin and stimulated breathing, as this would introduce even more toxic air into the body through the skin and mouth.

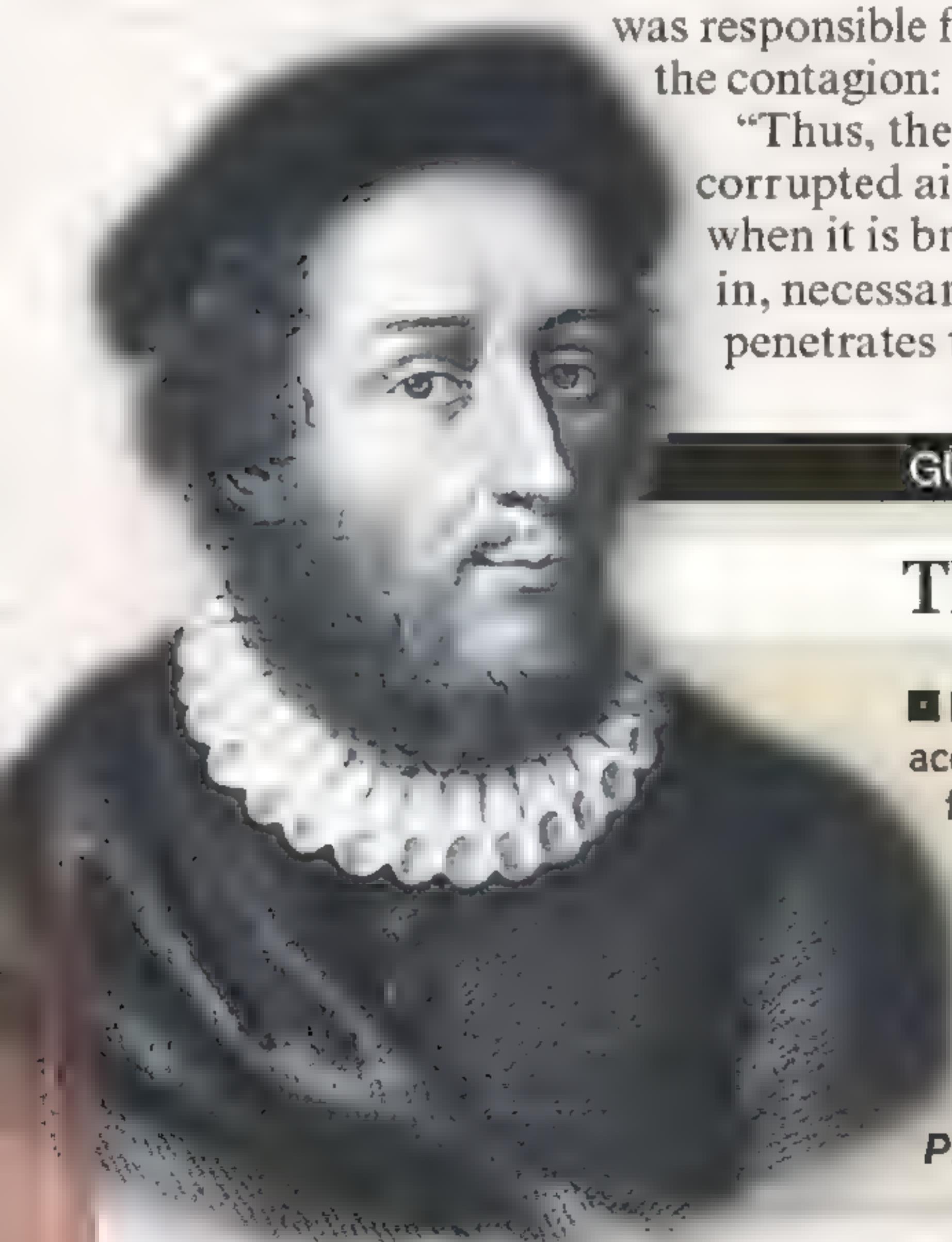
Others at risk of disease and decay were the anxious, as well as women, adolescents and young children. Lean, fat and ruddy-faced people were also threatened. According to medieval medicine, people with “dry” bodies and living a devout existence would be resistant to the plague. At the same time, doctors managed to slip God into the report: “What is more, we should not neglect to mention that an epidemic always proceeds from the divine will ... even though this does not mean forsaking doctors. For the Most High created medicine here on Earth.”

BLOOD-SOAKED CURE

Although nothing seemed capable of ending the plague’s runaway outbreaks, doctors’

creative attempts to treat the victims continued unabated. In 1365, the Flemish physician John de Burgundia (also known as Sir John de Mandeville) wrote another plague treatise. He fully supported the theory of the influence of heavenly bodies, convinced that a patient could be saved when the planets were in the right position, but he also believed the sick person could get better if administered with the right cure.

In line with the teachings of Hippocrates and Galen, de Burgundia believed that the human body was made up of four bodily fluids: black bile, yellow bile, blood and



GUY DE CHAULIAC 1300-1368

THE POPE’S PERSONAL PHYSICIAN

■ Pope Clement VI’s physician, Guy de Chauliac, had, according to his own account, experienced the plague first-hand, but was one of the few to survive the disease. When the plague struck the papal seat at Avignon, his main task was to protect the Pope from the disease, including through the administering of ointments. Guy de Chauliac also advised his employer to barricade himself in an

isolated part of the papal palace, surrounded by two bonfires to purify the air. Uniquely, the Pope authorised his physician to perform autopsies on plague victims to study the disease, and he was one of the first to distinguish between two types of plague: bubonic and pneumonic. In 1363, Guy de Chauliac published the surgical manual *Chirurgia Magna*, based on his own practice and research.

Physician to Pope Clement VI – Performed autopsies on plague victims – Wrote a medical manual

Neither spells, resin potions nor acidic foods could make the buboes magically vanish.



phlegm. Any imbalance between these fluids threatened a person's health – for example, de Burgundia was convinced that the plague's burning fever was caused by an excess of warm blood in the body. By draining blood from the sick person, doctors tried to correct the imbalance. Patients could look on as the evil dripped out of their bodies.

The treatment had to be carried out within 24 hours of the patient falling ill and the blood had to flow until the patient fainted, Burgundia said.

Bloodletting wasn't a job solely for doctors but could also be performed by the physician's assistant or even the local barber, also known as the barber surgeon. His sharp knife was used for more than just shaving; it could also be employed for small surgical procedures such as extracting bad teeth, lancing abscesses or drawing blood.

SAINTS AND SPELLS

Another popular remedy for the Black Death came in the figures of plague saints, such as St Roch, who, according to legend, miraculously survived the plague. The legend said that St Roch devoted his impoverished life to caring for and attending to the sick.

Just by laying his hand on them, St Roch was able to cure all kinds of ailments:

however, the saint was himself struck down by the plague and, like many other plague victims, was driven from his town. He took refuge in the forest, where a dog provided him with bread and licked his wounds until he recovered. But even pious devotion to St Roch could not stop the plague.

In desperation, many people defied the Church's ban on superstition and sorcery, and turned to wise women and men who used white magic to try to drive disease out of the body. Various witch doctors were kept busy casting protective spells and divining the future for the sick.

For example, they used the magic word 'abracadabra' as a remedy for the violent fever brought on by the plague. Wise women wrote the magic word down on a slip of paper repeatedly, removing the last letter from each line until only 'A' was left to symbolise the gradual eradication of the fever and disease. The plague sufferer would then have to eat a line of the letters every day or hang the note around their neck until the fever had abated. Only then could they safely throw the talisman away.

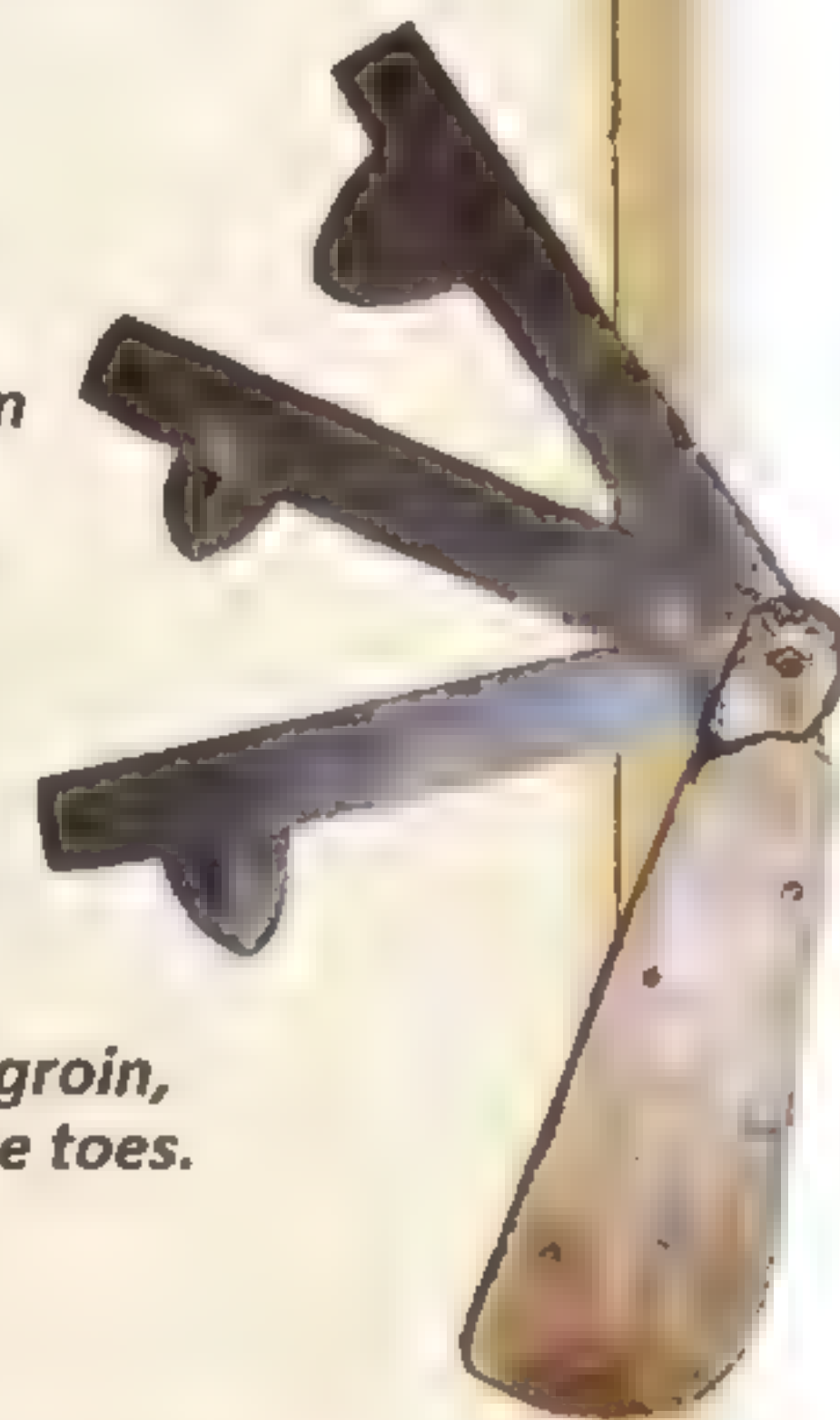
Wise women also believed that the plague would be released if they plucked a hair from the patient and tied it to a tree. The tree would absorb the disease's power and thus

BLOODLETTING

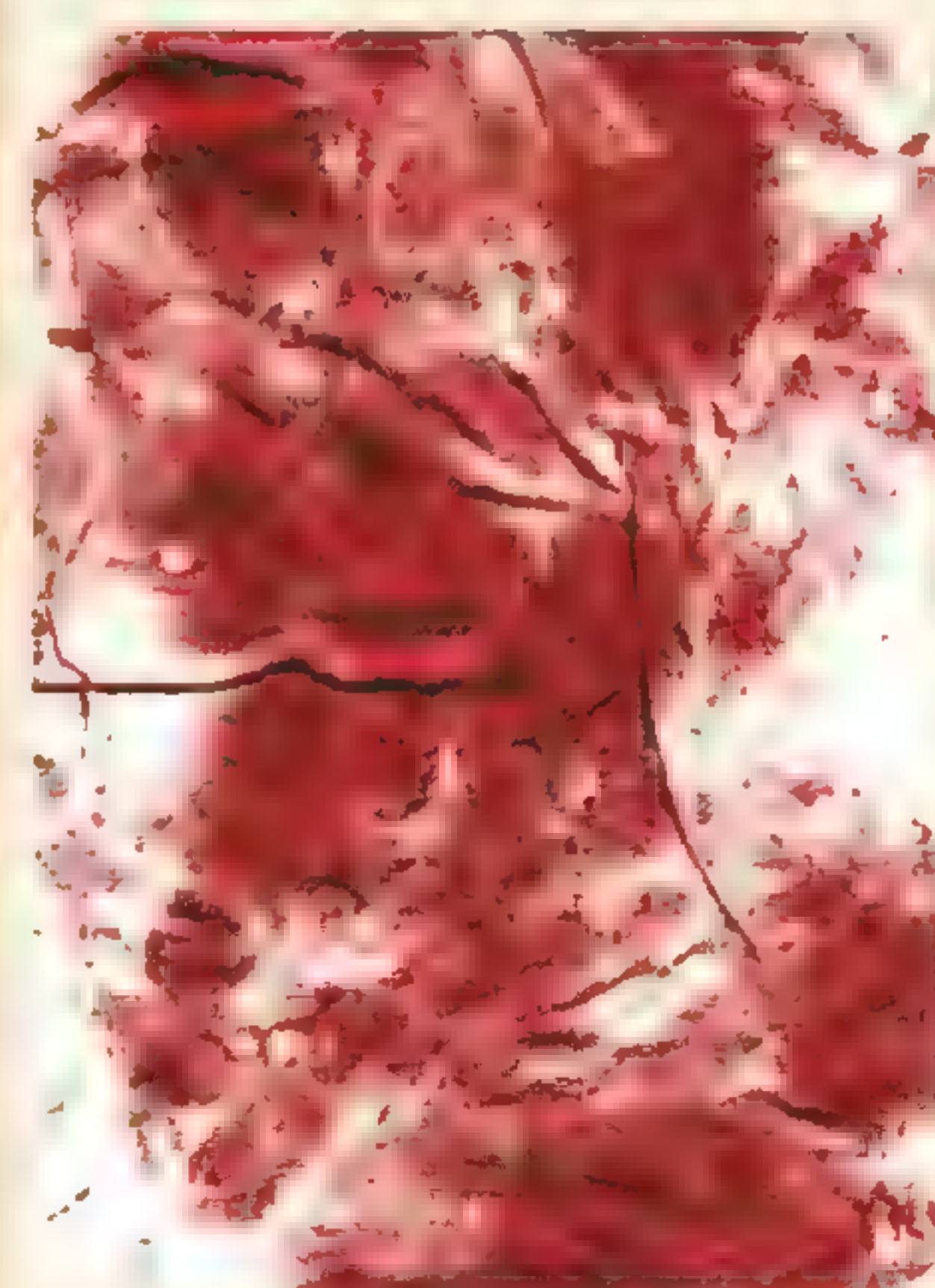
BARBERS DREW BLOOD FROM THE SICK

In the Middle Ages, the town's barbers performed various minor surgical procedures, including bloodletting. During the plague epidemics, the sick queued up to have blood drawn. Doctors believed that too much hot blood made people sick.

1 The patient sat down and was asked to take a firm grip on a wooden cane to make their veins more visible. The barber took his razor and made a cut in one of the patient's veins, for example in the elbow joint, groin, face or between the toes.



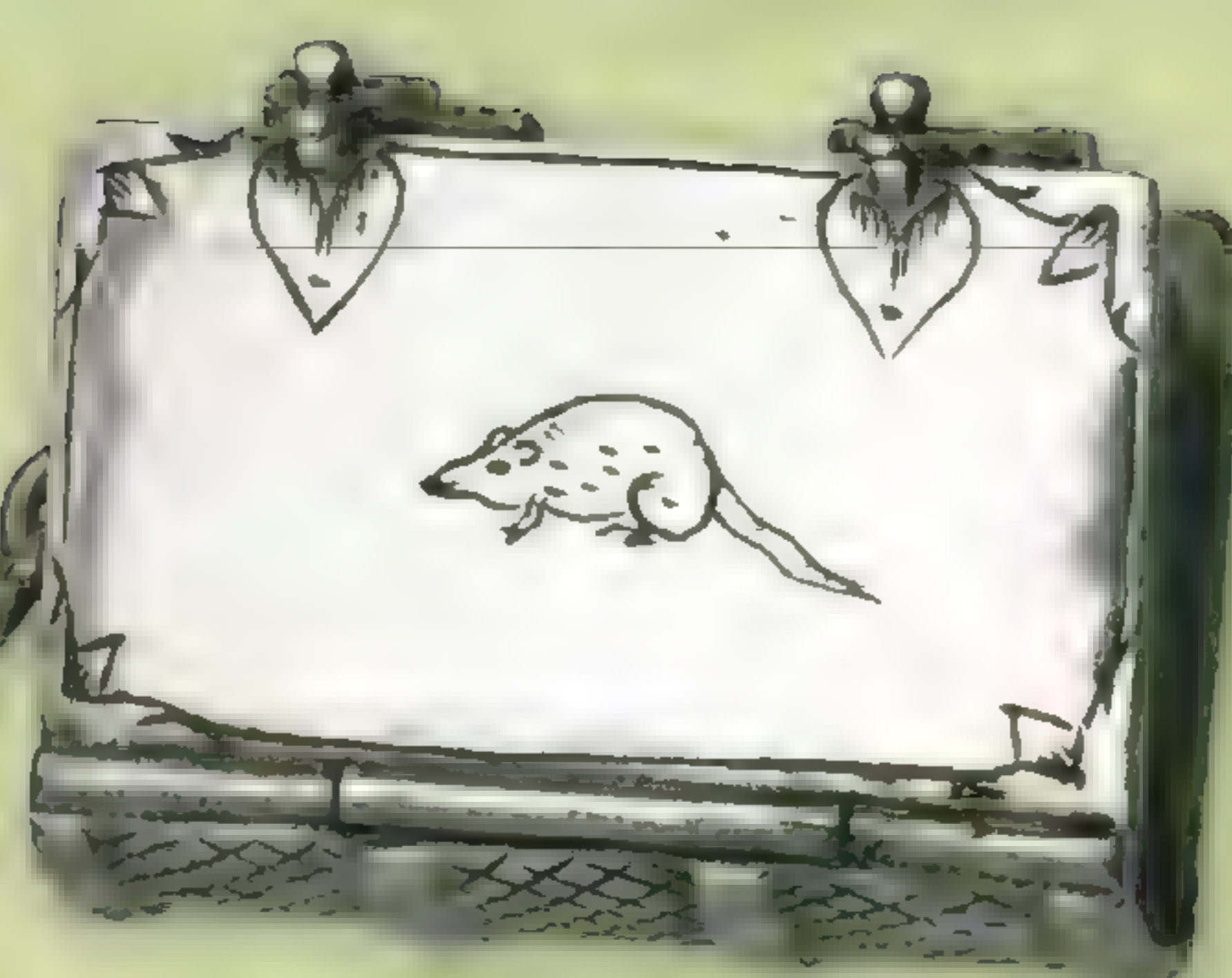
2 The blood dripped into a bowl and the barber had to decide how much blood to draw from the patient. The amount varied from person to person.



3 Sometimes the patient fainted during bloodletting – either from fear or anaemia. The doctors' advice was to wake them up again with a bucket of cold water over the head. Finally, the patient was bandaged with a cloth.

DOCTORS PRESCRIBED DEAD COCKERELS

In desperation at the unstoppable plague, medieval doctors resorted to all sorts of remedies – from cinnamon, scented boxes, saints and bloodsucking leeches to searing buboes with red-hot iron rods and placing poultices of dead, cut-up cockerels on sick bodies. But it didn't matter. The doctors were no match for the ravages of the Black Death.



The box contained scented herbs to purify the air.

Doctors advised placing a dead cockerel on the abscesses.



Cinnamon was prescribed against the Black Death.

force it to relinquish the hair's owner from its deadly grip.

Another method was to seal the plague inside a house by leaving its dead occupants lying where they died and carefully sealing all windows and doors so that the infection could not escape.

Doctors' primary advice was to avoid the sick in the first place. Even the gaze of a sick



The ravages of the plague were depicted as Death creeping in at night to strangle the sick.

person could kill, they believed. The plague would spread from eye to eye, especially if the sick person felt severe pain just as their eyes met. To protect themselves from infectious glances, doctors wore glasses with red lenses. When doctors visited the sick, they also tried to shield themselves from the plague by opening windows and doors, and creating a draught. Some threw various herbs on the fire to smoke out the disease. As far as possible, they always kept their distance or breathed through a filter.

BEAK-SHAPED FILTERS

A plague treatise written by the physician Johannes Jacobi in 1364 recommended dipping a piece of bread or sponge in vinegar and holding it to the nose and mouth. All acidic liquids prevented infection, he promised.

However, the soaked-bread solution was impractical, so doctors developed a special protective mask shaped like a large beak that made the doctor resemble an overgrown bird. The beak was equipped with two small holes for breathing and filled with special herbs or sponges soaked in vinegar to filter the infection out of the air. Others dressed in full protective suits and armed themselves with canes so they didn't touch the patients,

while some even believed they could take the patient's pulse with the cane.

The scholars also set out guidelines for special diets to be followed by people to prevent and cure plague. In general, they recommended filling up on 'sour' foods, while avoiding sweets that could cause putrefaction. Sour fruits, ginger, cinnamon, cumin, caraway, mace, saffron, rue, sage, nuts, parsley, rose water and vinegar were all on the list of curative foods.

If it had enough money, a family could protect itself with a special potion made from gold powder, mercury and water – a mixture that was, ironically, pure poison. Fortunately, few could afford such deadly raw materials.

Spanish physician Jacme d'Agramont, writing in 1348, emphasised the role of the

psyche in the fight for survival.

"From imagination alone can come any malady," he wrote. "Thus, it is evidently very dangerous and perilous in times of pestilence to imagine death and to have fear. No one, therefore, should give up hope or despair, because such fear only does great damage and no good whatsoever."

D'Agramont demonstrated some foresight with his words, as did Johannes Jacobi when

"Saffron, rue, sage, nuts, parsley, rose water and vinegar were all on the list of curative foods."

Doctors recorded their experiences of the plague in treatises.

Bottles for medicines.

A candle warmed up fragrant herbs and oils.

Physicians believed that ginger could draw out the disease.

Doctors burned off buboes with hot, cauterising iron.

Leeches sucked 'sick' blood out of the body.

Statues of St Roch became popular when the plague broke out.

“It is perilous in times of pestilence to imagine death and to have fear”

he presented a series of advice on hygiene that even to modern eyes seems useful against epidemics such as the plague. He encouraged people to keep their homes clean and aired, plus wash their hands several times a day. However, like d'Agramont, he still believed that too many hot baths corrupted the body.

LATRINE ODOURS REPELLED PLAGUE

In major cities such as Florence and London, the authorities also became more attentive to hygiene. In London alone, residents experienced more public measures to keep the city clean in the period from 1350 to 1400 than they had in the previous 200 years combined.

The cities' authorities claimed that the plague was caused by foul smells, and so

focussed their attention on butchers. These tradesmen slaughtered cattle and pigs in squares within the city walls, and discarded entrails and rotten meat often ended up in the river. At low tide, the meat would lie on the riverbed, emitting a horrible stench, especially on hot summer days. Now the authorities tried to put an end to the mess. Despite injunctions and bans, however, many butchers continued to throw their waste into the rivers.

While doctors like Jacobi believed that the stench carried the infection, others believed the foul air actually kept the plague at bay. They claimed that inhabitants could avoid infection by, for example, staying near latrines, whose nauseating smells would repel the plague's deadly odour. Nightmen

— those responsible for removing waste — were even considered immune to the plague.

PRIESTS FORCED TO BETRAY THE SICK

Whether doctors believed in angry planets, poisonous vapours or deadly glances, they generally agreed that the plague was carried through the air and spread when the sick met the healthy. In some ways, this is consistent with what we know today about airborne bacteria.

When a plague outbreak was imminent, the authorities would rush to close neighbourhoods or entire towns, and large gatherings of people were banned. In Venice, citizens could even turn each other in if they suspected a plague victim. Isolating the sick was an effective, but sometimes cruel,

“Venice dedicated one island after another to cemeteries”

Coffee as a miracle cure for the plague? That's what one English pamphlet claimed in 1721.

first, in 1468, was Lazzaretto Nuovo on the island of Vigna Murata off the coast of Venice. Sailors on merchant ships from plague-affected regions were isolated separately on the island for 40 days until they were cleared of suspected infection. The ships' cargo was also given a thorough treatment. Their goods were sorted, labelled and placed in separate rooms, where smoke from burning herbs would remove any toxic air. If a sailor showed signs of infection, the authorities seized all his belongings and burned them, while the sailor himself was promptly sent to one of the dreaded plague hospitals.

These squalid 'lazarettos' were overcrowded, and the sick often had to settle for lying on the floor among hordes of wailing people in pain and with the stench of death all around them. Only rarely did people escape alive from the 'slaughterhouse'. The city government of Venice took no chances. They hired guards to patrol the plague hospitals and quarantine stations to ensure that no one could carry the infection outside.

The risk did not vanish when the sick died. Bodies, still infected, littered the streets, and since the Church forbade the burning of the dead, the bereaved had to constantly find new places to bury their beloveds' plague-ridden bodies. The health commission in Venice dedicated one island

after another to cemeteries, and in the early hours of the morning, the city's residents watched pallbearers row through the canals with their macabre cargo.

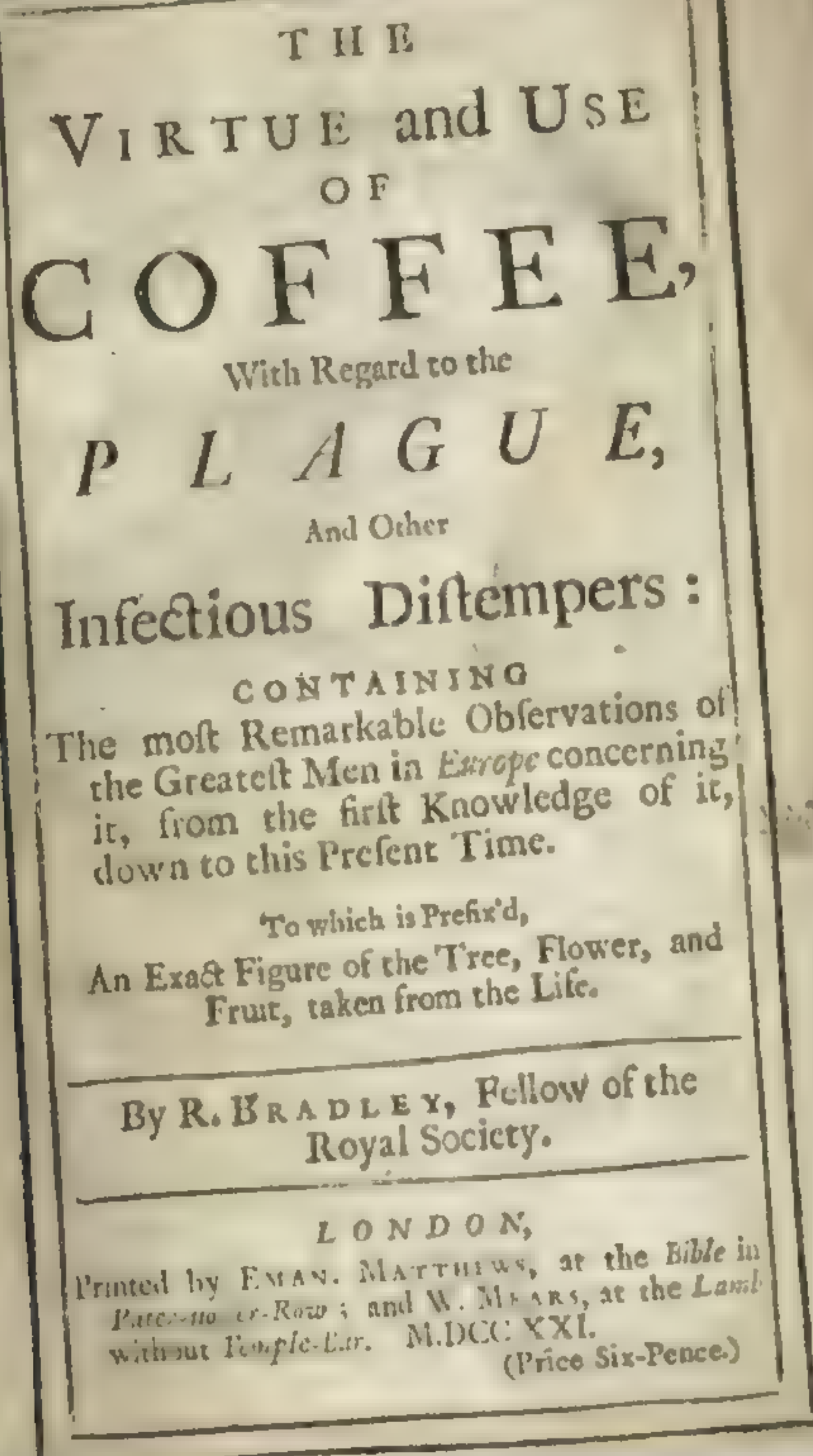
With the plague killing a smaller and smaller proportion of the population each time it struck, doctors thought their cures were working. But they were sorely mistaken. It wasn't until the development of antibiotics in the 20th century that doctors were able to effectively treat plague. Modern historians believe that the declining death toll during the Middle Ages and later in the Renaissance can

be explained by the fact that the plague weeded out the weakest, leaving only the strongest and most resilient to survive. When the plague struck again, those who had survived the previous outbreak would again have a better chance of survival. This also explains why later epidemics struck children and young people

who'd never previously experienced the ravages of the Black Death the hardest, and why the death rate increased when the plague broke out after a gap of many years.

Despite the many crazy and utterly useless cures of the Middle Ages, the disease had a major impact on medicine. Instead of relying blindly on the words of the Bible or the writings of ancient scholars, doctors began to collect and rely more on their own experience. The fight against the plague was the starting point for the scientific revolution in medicine that was to come in the following centuries. ■

Plague-stricken bodies were taken from the cities and buried in cemeteries or, where nature allowed, on isolated cemetery islands.



method. In Milan, in 1374, the city lord Bernabò Visconti introduced new laws and regulations dictating that any inhabitant who developed boils had to leave the city immediately. Visconti forbade the city's residents from caring for the sick on pain of death. Milan's priests were also required to report all sick people to the authorities. If they failed to do so, they were burned alive.

SAILORS WERE QUARANTINED

During one outbreak in Venice in 1423, the authorities had an idea. The island of Santa Maria di Nazareth, situated outside Venice, was perfect for isolating plague victims, so they built Europe's first plague hospital on the island. The rulers of other cities were inspired and built similar hospitals, for example at Padua in 1448.

As time went by, the authorities in many cities also built quarantine stations. The

40

days was the quarantine period before sailors could enter Venice.

THE PLAGUE RAGED FOR 400 YEARS

The great plague epidemics continued until the middle of the 18th century. However, fewer people died in the later outbreaks.

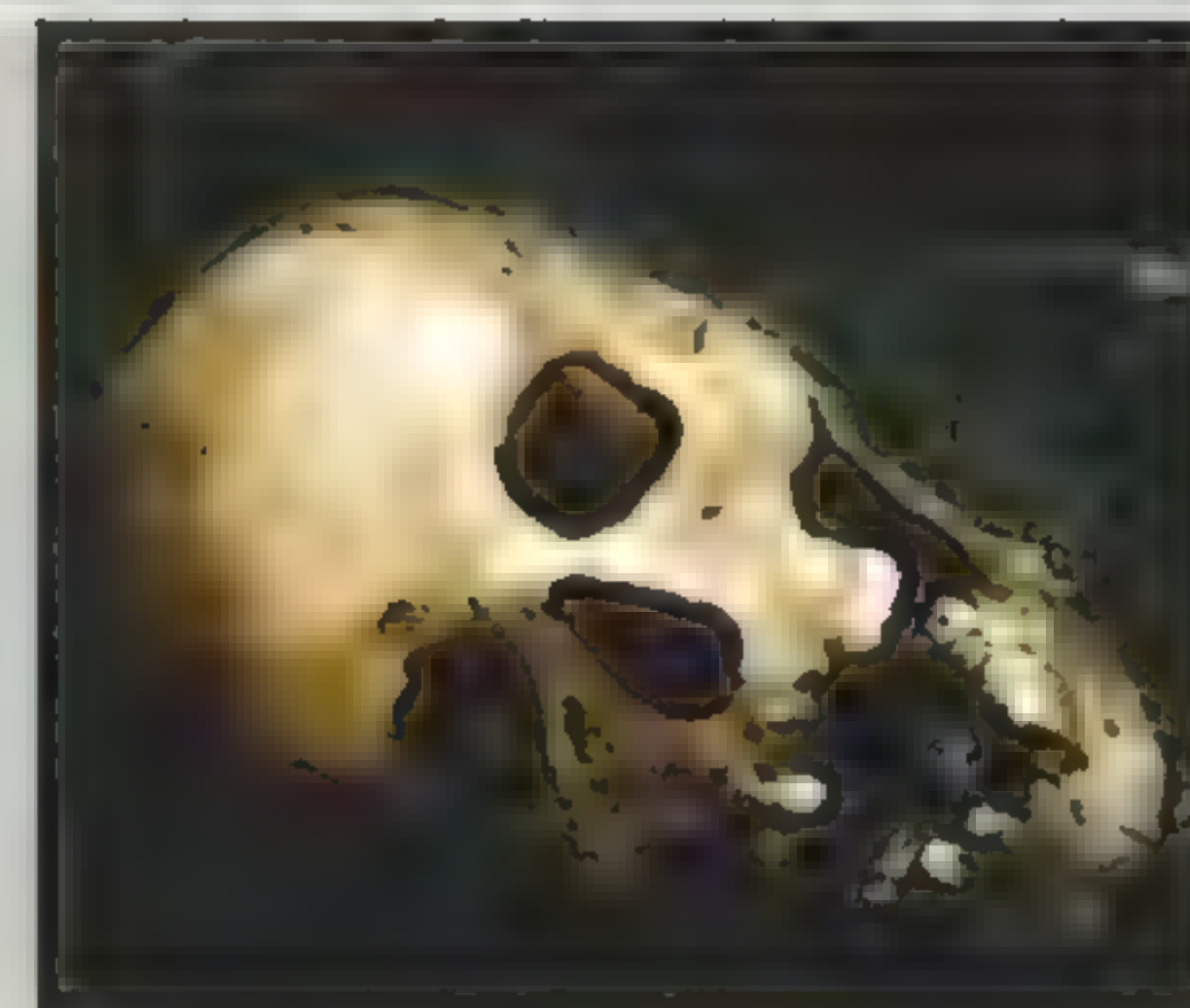
1347-51

The plague struck Sicily when it first hit Europe and spread to the rest of the continent before the epidemic subsided in 1351. Scientists estimate that the dreaded disease killed between one third and a half of Europe's population. Only the strongest or most isolated people survived.



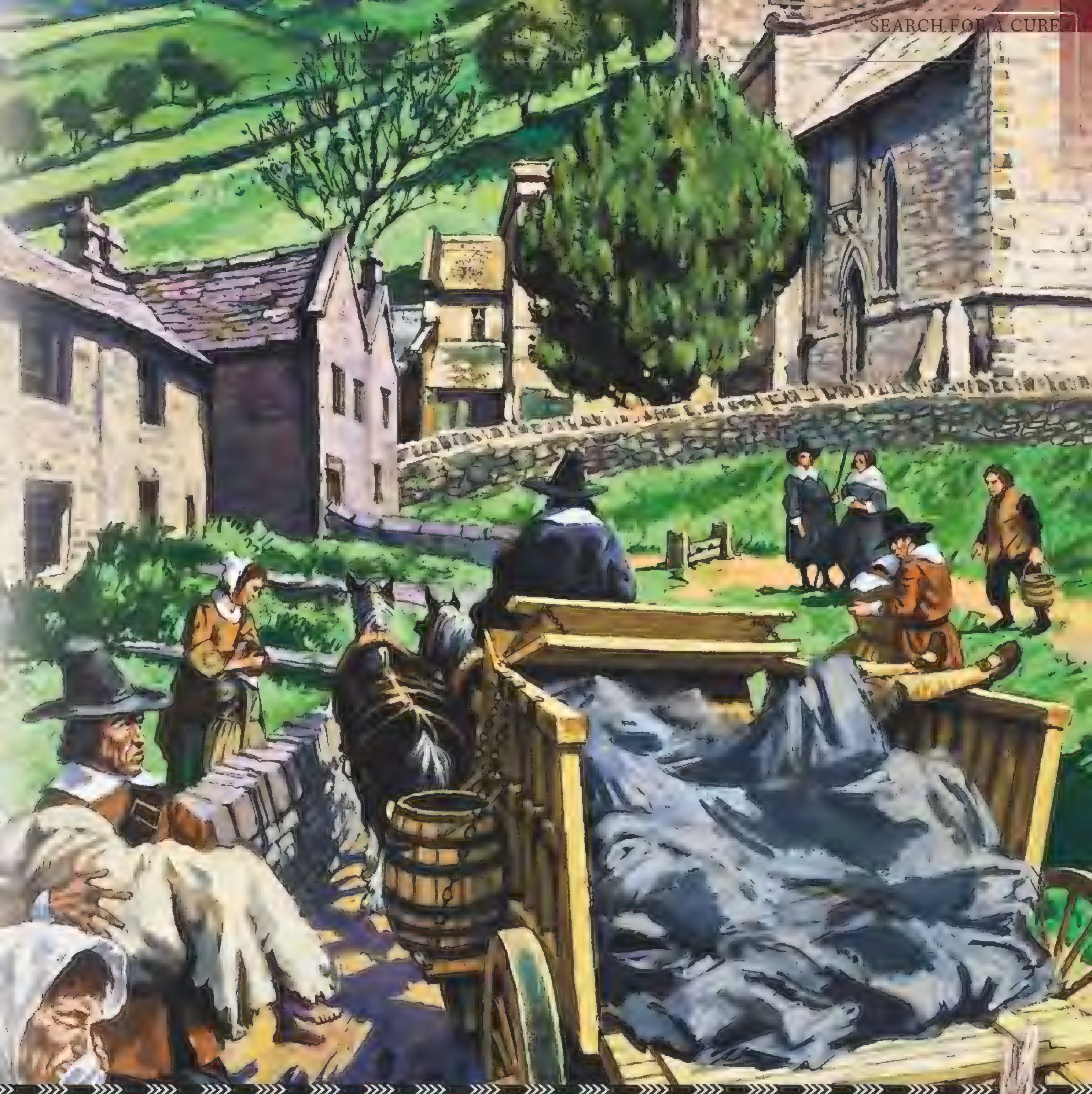
1360-64

When the plague struck Europe for a second time, children and young people born after the first epidemic were particularly vulnerable. Scholars believe that the older population who survived the first outbreak generally had such a strong natural resistance that they did not succumb this time either.



1390-93

When the plague hit Britain for the fifth time, only around 10 percent of the population died. This was because previous outbreaks had weeded out the weakest Britons.



[1575-76]

Despite quarantine stations, hospitals and cemeteries on isolated islands, the plague returned to Venice in 1575. By the time the ravages of the disease subsided, one in four inhabitants had died.



[1665]

The plague took 100,000 Britons, 20 percent of the population, to their graves when it struck London in 1665. While King Charles II of England left the city, the mayor and the city council chose to battle the disease within the city walls.

[1720]

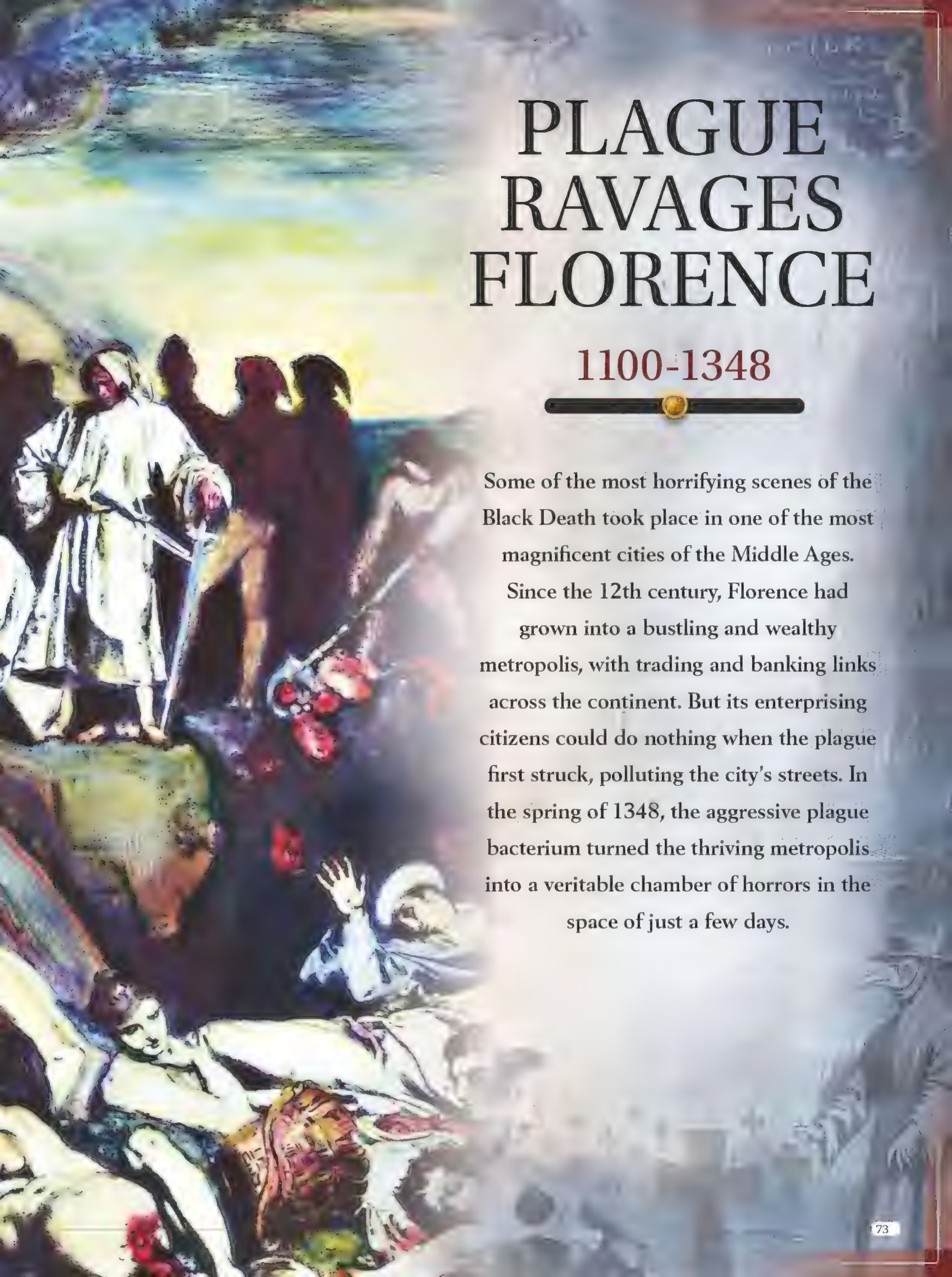
One of the last and most violent outbreaks hit the south of France. In the city of Avignon, more than 6,000 died, a third of the city's population. The authorities tried to contain the plague with a stone wall around the region.



[1743]

The last epidemic in Europe, like the first, started in the harbour town of Messina in Sicily. This time, the Black Death affected around 40,000-50,000 people. Subsequent outbreaks have been less deadly.





PLAGUE RAVAGES FLORENCE

1100-1348

Some of the most horrifying scenes of the Black Death took place in one of the most magnificent cities of the Middle Ages.

Since the 12th century, Florence had grown into a bustling and wealthy metropolis, with trading and banking links across the continent. But its enterprising citizens could do nothing when the plague first struck, polluting the city's streets. In the spring of 1348, the aggressive plague bacterium turned the thriving metropolis into a veritable chamber of horrors in the space of just a few days.

1100-1348

1100 Florence starts to enter its heyday and the population increases.

1250-75 The Peruzzi and Bardi family banks expand.

1296 Building commences on the Santa Maria del Fiore cathedral.

1347 Some 4,000 die of famine following a crisis after the major banks collapse.

1348 The plague ravages Florence. More than half the population dies within six months.

1100 1250 1296 1347 1348

In the early months of 1348, an anxious feeling spread through the narrow streets and large squares of Florence. The citizens had heard rumours of a terrible disease that had spread from Sicily to the coastal towns of western Italy. When merchant ships carrying infected sailors docked, the disease spread in a matter of days, killing thousands of the port towns' residents. Fortunately, Florence lay well inland, several days' journey from the coast. Hiding behind their high city walls, the inhabitants of the Tuscan metropolis hoped to be spared from the terrible disease that approached dangerously from the south.

However, the Florentines' hopes were soon dashed. As March dawned, the first citizens of the city began to complain of unusually sore muscles, followed just a few hours later by a fever. The victims were so badly affected

that they could hardly keep their balance and had to stop again and again in the streets to lean on the walls of houses to avoid falling over. Their breath was foul and the stench around them steadily worsened as bacteria-infested boils appeared on their bodies. These so-called buboes popped up largely in the groin and armpit regions, and so much pus formed in them that they could grow to the size of an egg or a small apple. Before long, stinking puddles of vomit and blood coughed up by stricken inhabitants littered the narrow streets of the city.

Just three days after the first Florentines were struck down by this cruel disease, the plague victims' struggles were ending. In the final hours of their lives, blood seeped from their noses and bladders. All strength gone, the fever, which made the sick feel as if their bodies were burning up, eventually claimed its victims.

The first corpses now lay stinking in the city's streets and houses, but Florence had

The dome of Florence's magnificent cathedral was completed long after the plague struck. It is almost 100 metres high.



The gold florin was the medieval equivalent of the US dollar. Edward III borrowed 1,365,000 florins from Florence to finance his wars.

only witnessed the beginning. The thriving Tuscan city was on the brink of disaster.

PLAGUE HIT A CITY IN FULL BLOOM

Florence had undergone a stunning evolution since the mid-12th century. For 200 years, the city had grown and grown, not least because of its extensive and sophisticated textile industry. The city's many firms imported cloth, processed it and then exported the fine products to much of Europe. Woollen cloth was the city's most notable commodity, and both Florence's Arte della Lana wool guild and the merchant guild Arte di Calimala

thrived on the trade. The wool guild, according to the contemporary historian Giovanni Villani (1275-1348), had more than 200 workshops, which produced 70-80,000 pieces of cloth and employed 30,000 people. The merchants together possessed around 20 warehouses around

Canny bankers amassed huge fortunes for themselves in medieval Florence.

the city and imported more than 1,000 pieces of cloth annually.

The city's roots were firmly planted in the heyday of the Roman Empire. Florence's history dates to 59 BC, when Julius Caesar staked out plots of fertile land in the Arno Valley and gave them to his former soldiers. These plots eventually became Florence. After the dissolution of the Roman Empire, the city was eventually subjugated to the great power of the day, the Holy Roman Empire, and ruled by margraves – local military rulers appointed by the emperor. But as the emperor and pope became embroiled in an internal power struggle in the 11th and 12th centuries – particularly the dispute over who had the right to appoint bishops – cities like Florence were largely free to do as they pleased.

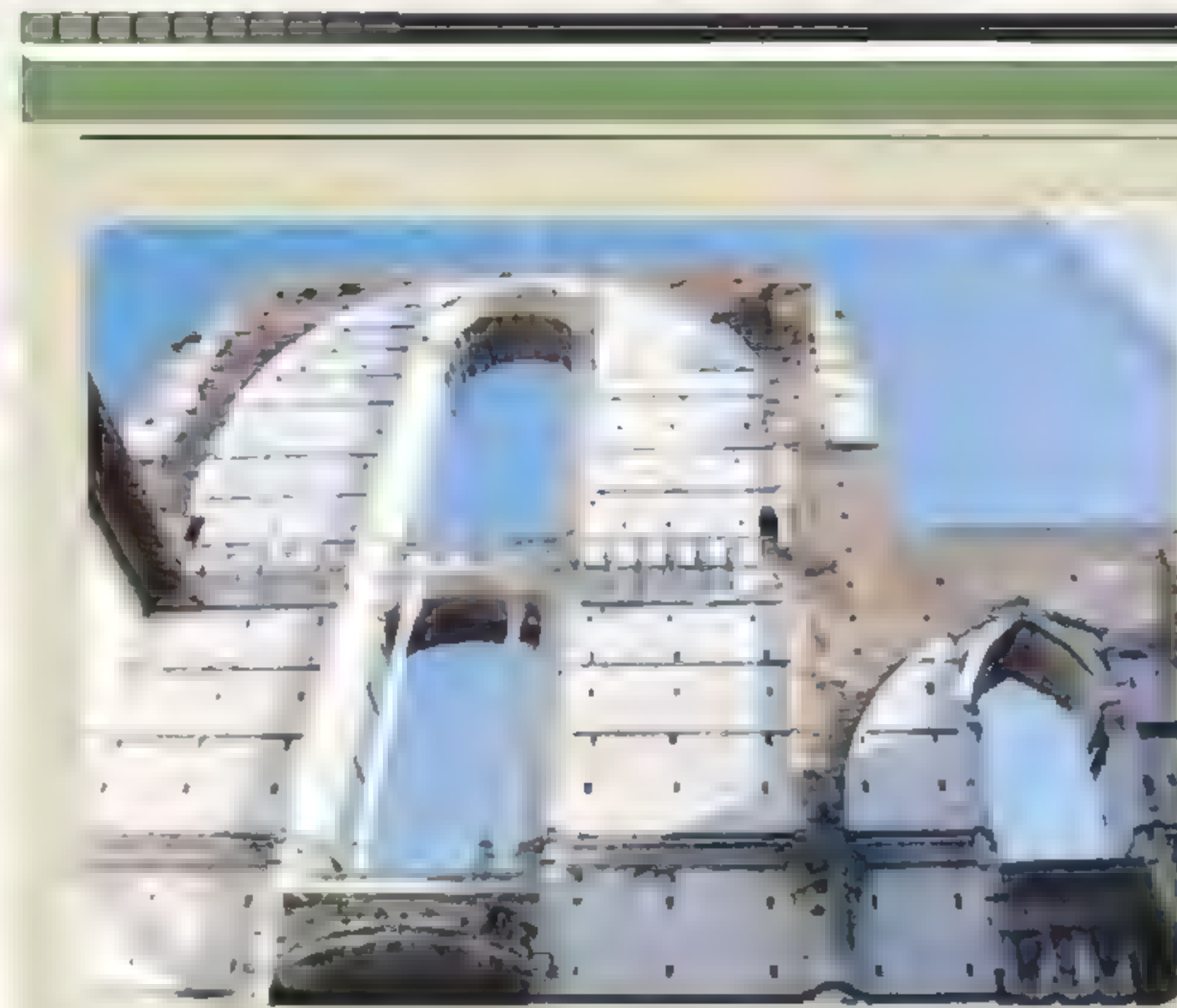
In Florence, it suited the citizens to establish a republic, which was realised with *il primo popolo* (the first democracy) in 1266. In principle, the republic gave all adult males a say in city government, but in reality, power was vested in the top echelons of society – *il popolo grasso*, the fat bourgeoisie, made up of merchants and tradesmen. When the highest offices had to be filled, the Albizzi family and other of the city's wealthiest families always ended up on the powerful seats of the council.

THOUSANDS EMPLOYED IN BUILDING

Regardless of who governed the city, for centuries people from the countryside and neighbouring towns flocked to Florence, where there were good job opportunities. Historians estimate that by early 1348 the city was home to around 100,000 inhabitants – about the same number as Italy's other commercial centre, Venice.

The economic boom that came with the textile industry enabled the Florentines to build the most beautiful city in the region – in competition with neighbouring Siena. The chronicler Giovanni Villani, who later died during the plague, wrote that Florence was one of the most exquisite cities in Europe. "Beautiful houses were going up all the time and improved in order to make them comfortable and rich," he reported.

At least 3,000 Florentines were employed in the building industry, and the labourers



MEANWHILE IN SIENA

RIVAL CITY WAS WIPED OUT

If the plague struck Florence hard, it probably hit Florence's long-standing rival and neighbour Siena even harder.

"It seemed to almost everyone that one became stupefied by seeing the pain," wrote chronicler Agnolo di Tura. Modern historians estimate that up to 70 percent of the city's 60,000 inhabitants died. Subsequently, the Sienese had to abandon the completion of an extension to the city's cathedral, which still stands unfinished as a memorial to the plague.

had to work hard, because everything was built in stone after a great fire in 1304 made Florentines aware of the fragility of their earlier wooden structures. Even when building private homes, builders had to lug huge boulders around, but even more gruelling was the work of the craftsmen who, in the years leading up to the plague outbreak, were busy building the city's new Santa Maria del Fiore cathedral. Construction had already begun in 1296, but some 50 years later the cathedral was far from complete. It was a huge task to realise architect Arnolfo di Cambio's vision of an enormous building that would add further prestige to the city.

Florence already had a town hall, the Palazzo Vecchio, that stood

94 metres high and, along with the rest of the city's magnificent buildings, gave Florence an imposing appearance. Several chroniclers of the time recounted how strangers were stunned when they first saw the city from a distance. The sight was particularly breathtaking when visitors stood on the surrounding hills and looked down on the city's numerous stone houses, which were protected behind an eight-kilometre-long city wall. Along the wall, no fewer than 73 towers rose, some more than 30 metres high.

MEN DRANK HEAVILY

To enter Florence, a traveller or trader would pass through one of the city wall's 15 gates. From there, the visitor meandered through winding

Construction of Florence's landmark, the mighty Santa Maria del Fiore cathedral, had already been underway for over 50 years when the plague broke out.



EYEWITNESS

ANONYMOUS ITALIAN / 1348

SPARED BY GOD'S GRACE

“A certain man bled me, and the blood flowing touched his face. On that same day he was taken ill, and the next he died; and by mercy of God I have escaped. I note this because, as by mere communication with the sick the plague infected mortally the healthy, the father afterwards avoided his stricken son, the brother his brother, the wife her husband, and [so on].”

and narrow alleyways between densely packed houses. However, there were also larger streets that were even paved with stone in honour of the many coachmen who drove cartloads upon cartloads of goods in and out of the city.

The city's squares and streets bustled with life, and from the shop fronts traders hawked a wide variety of goods.

“The workshops of shoemakers and clog-makers and slipper-makers numbered around three hundred,” Giovanni Villani noted. Butcher's shops, bakers, fishmongers and small grocers helped fill the stomachs of the city's residents. According to Villani, the Florentines consumed 114,000 animals annually, including 60,000 sheep, 30,000 pigs and 20,000 goats. Each adult resident complemented their meals by drinking on average around 300 litres of wine a year.

EUROPE'S BANKING CENTRE

The volume of trade in Florence, most of which involved the city's large firms importing raw materials to sell as finished

pieces abroad, created the need for a strong currency, and in 1252 the Florentines introduced the gold florin. The small coin – weighing just 3.53 grams – was piously decorated with a portrait of St John the Baptist on one side and a lily on the other. But the florin was as secure as it was small. It could only be used if it was handed over in a small leather pouch sealed with the seal of the mint, thus protecting it from counterfeiting and the widespread practice of cutting small pieces from coins to fraudulently reduce their weight.

The florin was the first currency to take hold in most of Europe, and by the mid-14th century, the small coins were the standard means of payment for large transactions in western Europe. The florin's growing popularity tied in with Florence becoming a banking powerhouse during the 14th century.

With the city's economic boom, large business empires sprang up and, as well as owning many of Florence's manufacturing companies, they also got involved in banking and money exchange. The Arte del Cambio exchange guild grew to become one of the city's most powerful, and up to 80 banks operated in Florence alone. The two largest, Bardi and Peruzzi,

also established themselves abroad, helping to spread the florin throughout Europe. Just before the plague, however, Florence's money men suffered a serious setback. Both had lent large sums to the English king during the Hundred Years' War, and when it became clear in the early 1340s that they would never get their money back, the finances of both the Bardi and Peruzzi families collapsed.

As the two families had gained enormous influence and power in Florence, their failure spread to the rest of the city.

The consequences were so severe that a minor famine ravaged the city's citizens – almost a harbinger of the horrors that awaited the Tuscan trading city in the spring of 1348.

PLAGUE JUMPED FROM SICK TO HEALTHY Every day, more and more sick people appeared in the cityscape, and the stench of

An eyewitness described how pigs dropped dead in the streets of Florence after rummaging through a plague victim's clothes.

Terrifying scenes unfolded in the streets. As the bodies piled up, powerless citizens hit the bottle, while others fled.

infection and death grew inexorably. As the writer Giovanni Boccaccio moved through the plague-ridden streets, he witnessed the growing accumulation of corpses – it was as if nothing could stop the aggressive disease.

“Whenever those suffering from it mixed with people who were still unaffected it would rush upon these with the speed of a fire racing through dry or oily substances that happened to be placed within its reach. [And] not only did it infect healthy persons who conversed or had any dealings with the sick ... but it also seemed to transfer the sickness to anyone touching the clothes or other objects which had been handled or used by victims.

“One day, for instance, the rags of a pauper who had died from the disease were thrown into the street, where they attracted the attention of two pigs ... And within a short time they began to writhe as though they had been poisoned, then they both dropped dead to the ground,” he wrote.

In his main work, *The Decameron*, a fictionalised story of ten young, wealthy

“The stench of infection and death inexorably grew”



Florentines who fled the plague-stricken city, Boccaccio used the preface to recount his own experience of the torments of the plague in Florence. And although the author may have in places made use of minor artistic licence to create an effective atmosphere, other contemporary sources from Florence and the rest of Italy confirm that Boccaccio's descriptions were largely accurate and credible.

FLORENCE BECAME A GHOST TOWN

Boccaccio also recounted how some of the city's frightened citizens, faced with the terrifying disease, turned a blind eye to all norms and virtues:

“[They] maintained that an infallible way to ward off this appalling evil was to drink heavily, enjoy life to the full ... gratifying all one's cravings ... and shrug the whole thing off as one enormous joke,” he wrote. “They would visit one tavern after another drinking all day and night to immoderate excess or ... they would do

their drinking in various private houses, but only in ones where the conversation was restricted to subjects that were entertaining or pleasant.”

While some stumbled drunkenly through the streets, fear of the disease drove the vast majority into hiding. As lively as the streets had been before 1348, they became empty and deserted after the arrival of the Black Death. Where Florentines had previously heard the clanging of workers' tools and the scraping of stones being dragged around the building sites, suddenly there was complete silence. Not even the once-incessant chatter and shouting of the traders could be heard in the streets.

“No craft worked in Florence: all the shops were locked up, all the taverns were

Poet Giovanni Boccaccio documented with horror the ravages of the plague in his home city.

“ Crowds of wealthy Florentines
hastily packed up ... and headed
for the ‘clean air’ of the country ”



While tens of thousands died in the densely populated city, Florence's rich and powerful retreated to their country houses.

closed, with the sole exception of apothecaries and churches. If you went outside, you found almost no one," recounted historian Marchionne di Coppo Stefani, who experienced the plague at the age of 12 and recorded his account 30 years later.

Many of the city's wealthy citizens simply chose to flee. A contemporary chronicler recounts how many of Florence's citizens – relatively ordinary as well as rich and powerful – had built large and wealthy estates in the countryside. These rural dwellings were now ideal havens from the plague. Crowds of wealthy Florentines hastily packed up their belongings and headed for the "clean air" of the country. In the Middle Ages, it was commonly believed that "bad air" was the cause of disease, including the plague.

Today, scholars know that just as many people died from the plague in rural areas as in the cities – fresh country air or otherwise.

Still, it wasn't a completely crazy idea to seek refuge in the countryside. Modern historians believe that escaping to more remote areas probably saved many Florentines from death, because isolation was the most effective countermeasure to the aggressive and contagious plague bacterium.

PARENTS ABANDONED SICK CHILDREN
Within the walls of Florence, those who didn't become infected probably saved their lives simply by shutting themselves away or at least keeping a safe distance from their plague-stricken neighbours.

Fear of infection meant that the mere sight of the boil-ridden plague victims was enough to keep healthy Florentines far away – even if they were related to the sick.

"This scourge had implanted so great a terror in the hearts of men and women that brothers abandoned brothers, uncles their nephews, sisters their brothers, and in many cases wives deserted their husbands," wrote Boccaccio. "But even worse, and almost incredible, was the fact that fathers and mothers refused to nurse and assist their own children."

As a result, many of Florence's citizens were left alone to grow weak where they lay, without a single person trying to help

them. A contemporary source recounts how some of those abandoned briefly recovered their strength and dragged themselves from their beds to the window to beg passers-by for help. However, if the plague sufferer did not live on one of the town's main streets, it could be half an hour before anyone strolled past. The dying man would then use the last of his strength to call out to the passer-by – only to be ignored by the fearful stranger in most cases.

Nor was there much help from the town's doctors. At first, the learned physicians tried to cure patients or relieve their pain, but many became infected themselves through close contact with the dying, who often lay covered in their own blood and vomit. Those few doctors who survived the plague, according to chronicler Marchionne di Coppo Stefani, demanded to be handsomely rewarded for their services:

"Those available wanted an exorbitant sum in hand before entering the patient's house, and once inside they felt his pulse with their faces turned away and inspected his urine from afar, holding strong-smelling substances to their noses."

In the absence of bactericidal antibiotics, doctors were often completely powerless against the plague bacterium and the rampant disease it caused. Only if patients survived long enough for their buboes to grow sufficiently large and mature enough could doctors increase their chances of survival by cutting the buboes open to drain the infection.

Usually, however, the sick person had expired long before that. The fact that every Florentine – from doctor to layman – was more concerned with his own survival than with caring for the poor wretches suffering from the plague had extremely unpleasant consequences for the handling of the dead. It had always been important for Catholic Italians to take good care of the dying and to organise a fine ceremony to ensure that the soul of the deceased went to heaven.

The custom was for the bereaved to intercede while a priest sent the dead on their final journey, but during the Black Death the funeral processions disappeared from the streets. In several of Italy's

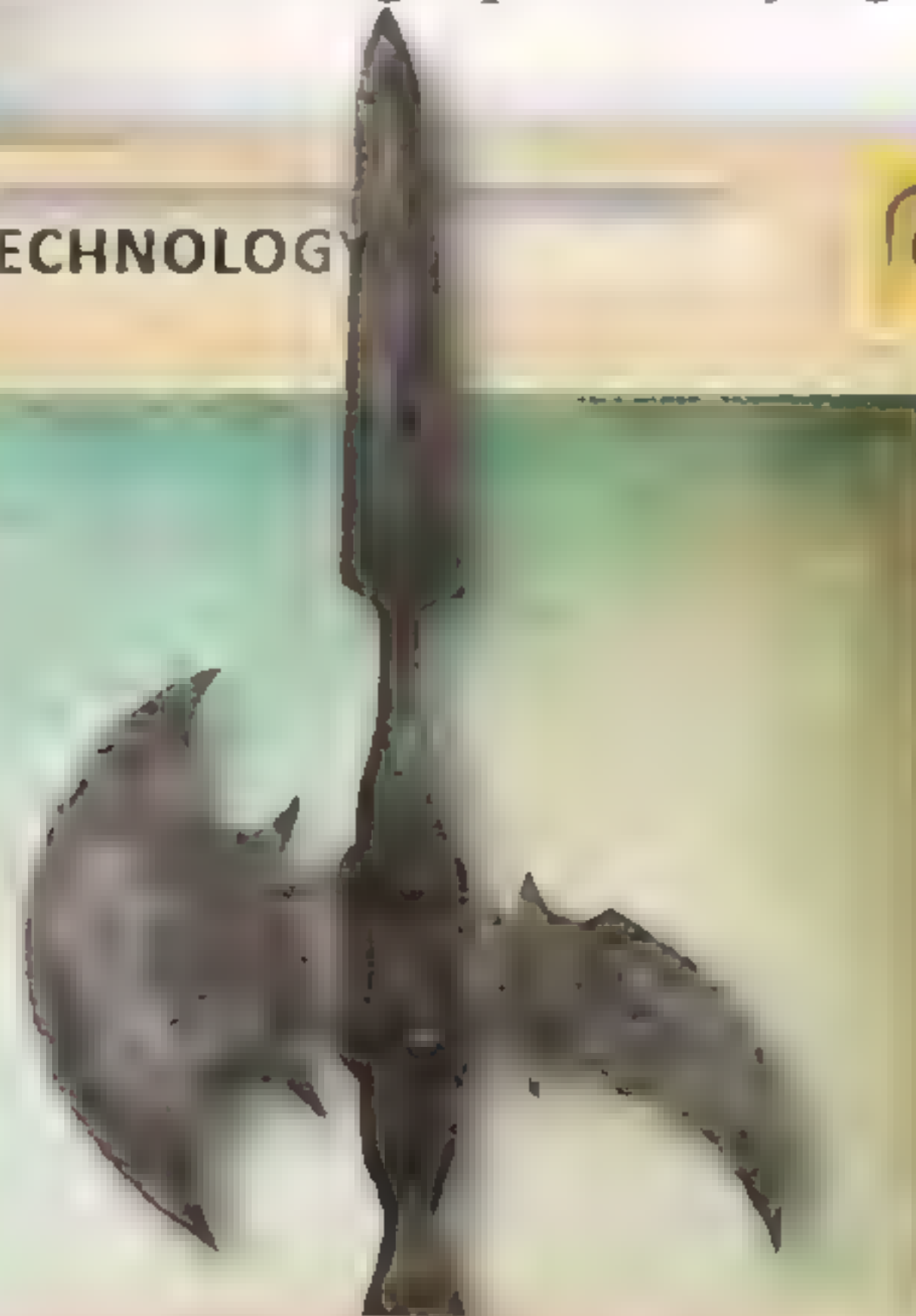
"Modern historians believe that escaping to more remote areas probably saved many Florentines from death."

TECHNOLOGY

CULTURE.....

ECONOMY.....

DAILY LIFE..



City declared war on the plague

The terrible plague epidemic of 1348 prompted future Florentines to take strong measures to prevent a recurrence. At the end of the 14th century, the city set up a health board to prevent the spread of

infection during plague outbreaks. Military units were tasked with fencing off plague-affected areas from the rest of the city, and if the sick tried to cross the quarantine lines, the soldiers would routinely hack them down.

“New arrivals were ... stowed tier upon tier like ships’ cargo”

>> plague-stricken cities, clergymen even fled from the people whose souls they were supposed to care for.

“No prayer, trumpet or bell summoned friends and neighbours to the funeral, nor was mass performed,” complained chronicler Gabriele de’ Mussi.

In Florence, according to Giovanni Boccaccio, it became common for priests not to touch the dead who were to be buried. Instead, the so-called plague-bearers – usually people of low status – were responsible for the risky handling of the many foul-smelling corpses. The pallbearers travelled from house to house in the streets of Florence, picking up the abscess-ridden bodies of the dead, placing them on stretchers and moving them to the nearest cemetery.

“Nor did the priests go to the trouble of pronouncing solemn and lengthy funeral rites, but, with the aid of so-called sextons, they hastily lowered the body into the nearest empty grave they could find,” wrote Boccaccio, an indecently quick end for Florentines who, just weeks earlier, could

have expected a proper funeral and burial from the proud Catholic city.

The pallbearers were paid well for their labour, but they also exposed themselves to extreme risk, and many never got to enjoy their newly acquired wealth before they themselves were put on stretchers and dumped in the ground. Eventually, plague bearers became so scarce that criminals got the job – the only ones left who were desperate enough to take on the deadly work.

55-65%
of Florence’s
citizens died
during the
plague.

BODIES WERE BURIED IN LAYERS LIKE LASAGNE

The huge numbers of bodies being shipped into Florence’s cemeteries every day soon caused problems. Never before

had the city’s parishes had to bury so many dead, and although the city was rich in churches, there were not enough burial places. No one could have their own grave anymore and the churches “dug deep trenches, down to the waterline, wide and deep” to free up more space, according to Marchionne di Coppo Stefani.

“Those who were responsible for the dead carried them on their backs in the night in which they died and threw them into the ditch,” he wrote. “The next morning, if there were many [bodies] in the trench they covered them over with dirt. And then more bodies were put on top of them, with a little more dirt over those; they put layer on layer just like one puts layers of cheese in a lasagne.”

Boccaccio also described the extended graves, “into which new arrivals were placed in their hundreds, stowed tier upon tier like ships’ cargo, each layer of corpses being covered over with a thin layer of soil till the trench was filled to the top”.

Stories of overflowing graves are common in descriptions of the plague’s ravages in other major European cities, but Florence was hit harder than many other cities. Why is still a subject of debate among scholars. Some believe that the poor hygiene in the city’s busy streets may have contributed to the rapid spread of the disease, while others disagree, pointing out how other cities with at least as much filth got off more lightly from the epidemic.

This is why some historians have suggested that the famine that followed the economic crisis that hit Florence shortly

before the plague outbreak may have been responsible, as the strain on people’s health reduced Florentine resistance to the disease compared to other places.

DRINKING AND ADULTERY FOLLOWED

After a few months of horror, however, the disease began to subside – even in Florence. By late summer, the bodies were no longer piling up in the streets and a sense of optimism spread among the survivors. The moralist Matteo Villani – brother of the chronicler Giovanni Villani, who died during the plague – was pleased to see that Florentines were once again finding the energy to behave decently towards their fellow citizens.

Villani noted how people began to again help and care for each other, which helped many more recover from the plague and in doing so improved their own chances of survival. By September, Florence was finally free from the torments of the plague.

Villani and other “sensible people” hoped that the city’s citizens, terrified by the horrors of the plague, would continue to behave virtuously – and perhaps even



Florentine Chronicle of Marchionne di Coppo Stefani is one of the main sources about the Black Death in Florence.



better than before. But they would be left disappointed.

"But no sooner had the plague ceased than we saw the contrary," Villani complained. Many of the survivors had inherited substantial sums from dead relatives and now celebrated the plague's disappearance in style:

"They forgot the past as though it had never been and gave themselves up to a more shameful and disordered life than they had led before. For, mouldering at ease, they dissolutely abandoned themselves to the sin of gluttony, with feasts and taverns and the delight of delicate foods," Villani harrumphed. And that wasn't even the worst of it – the euphoric Florentine survivors also indulged in "games of hazard and unbridled lechery".

One particular group enjoying their new-found riches were the city's poor, Villani noted with indignation, as they gleefully helped themselves to the treasures left behind in houses that the plague had left empty.

"Children and common women clad themselves in all the fair and costly garments of the ladies dead by that horrible death. Thus, almost the whole city, without

TECHNOLOGY.....

CULTURE.....

ECONOMY.....

DAILY LIFE...



Labourers were in high demand

Because the plague had wiped out more than half the population, there was a subsequent shortage of labour. In the countryside, formerly serf-bound peasants now demanded better conditions, and if their demands were not

met, they simply sought work with more amenable lords. Within Florence itself, the textile industry had to pay much higher wages to attract workers, and the post-plague period became known as a golden age for labour.

any restraint whatsoever, rushed into disorderliness of life."

FLORENCE ROSE AGAIN

The celebrations did not last, however. Litigation between relatives over inheritance rights soon filled Florence's courtrooms, and the shortage of labour from so many dead drove up the price of all kinds of goods. But at the same time, perhaps because of all the

indiscriminate deaths during the plague, something new was emerging. The people of Florence began to question the old authorities, not least the Church, which had proved powerless against the plague. New ideas spread through the population, new enterprising men made fresh fortunes, and soon the city was ready for a new golden age: the Renaissance. ■

The lucky ones were placed in a coffin – many were simply flung into mass graves in layers.





THE END WAS NIGH

1315-1453



Biting winters, failed harvests, famines, devastating earthquakes and more than 100 years of war. The plague was not the only disaster to ravage 14th-century Europe. While some people were driven to dig up corpses from graveyards to eat their flesh, others travelled from town to town, whipping themselves bloody to appease the Almighty. The pious people of medieval times thought that such a rain of plagues must be God's punishment for man's sins. Some even preached that Judgement Day was upon them.

1315-1453

1315 The harvest fails and a great famine strikes Europe.

1316 The Vltava River freezes in an extremely cold winter.

1339 English raid the French town of La Capelle-en-Thiérache.

1348 An earthquake shakes northern Italy.



1348 Penitent flagellants march through Europe.

1453 The Hundred Years' War in France ends.

1315 1316 1339 1348 1453

In the late 1380s, English preacher Thomas Wimbledon stood in the open-air pulpit outside Old St Paul's Cathedral in London. "The day of strict reckoning shall come" was his terrifying message to the crowd gathered before the cathedral. Wimbledon claimed that the apocalypse would come in the year 1400. His prophecy was rooted in a passage from the Bible in which Christ told his disciples that the end of the world would be heralded by years of war, pestilence and earthquakes, which were precisely the calamities that had befallen Europe over the preceding decades.

A hypothetical example illustrates the scale of misfortune in the 14th century: a peasant born in France in 1310 would have experienced many years of unusual weather throughout his childhood and youth, such as rainy summers followed by cold winters that led to extreme famine. From the age of 27 and for the rest of his life, he would have to live with war and the fear of English soldiers, who raided peaceful French settlements. Before he turned 40, he would have seen most of his friends and family members succumb to the plague. And finally, at the age of 46, if he lived near the Swiss border, he would have felt the powerful tremors of an earthquake near the city of Basel.

POOR ATE GRASS AND CARRION

"Many paupers gnawed on the raw carcasses of cattle like dogs, and ate the

uncooked grass of meadows like cows," noted the Dutch chronicler Johannes de Beka in 1316. Another Dutch writer told how the inhabitants of one village survived by eating the flesh of dogs and frogs.

The depictions date from the years when the Great Famine swept through northern Europe, bringing with it mass starvation. The famine, which lasted from 1315 to 1322, was the worst recorded in medieval Europe.

The disaster struck Europe's inhabitants after a period of climate change in the early 14th century. Across northern Europe, chroniclers in 1315 recorded how the rain poured down. Some even claim it fell for 100 straight days. The rainfall destroyed farmers' harvests and the following year brought no comfort either: "This inundation of water covered fields and valleys," reported an Austrian chronicler about the weather in 1316, adding it had "destroyed hay and standing corn [grain]".

Even in years of good harvests, yields were not abundant – for every grain of wheat planted, the medieval farmer received only three to four grains. He therefore harvested little more from his fields than he needed to feed his family. A single bad harvest could be fatal and, according to records from estates in southern England, yields fell by between a 33 and 50 per cent in both 1315 and 1316. The situation was even worse further north.

Many peasant families were left with a stark dilemma. If they used all the grain to bake bread and cook porridge to fill their

Starving and poor

Europeans stole children and ate them during the famine, according to British sources.



During the Great Famine of 1315-1322, Famine was depicted as a creature pointing to her mouth. Death wielded his sword over the hungry.

hungry stomachs, they would have no seeds to plant the following year. But if they saved the seed for spring, the whole family would have to go to bed hungry throughout autumn and winter.

PEOPLE ATE EACH OTHER

However, the misfortunes caused by the wet and cold weather extended beyond failed harvests. Cattle, pigs and sheep were also affected by disease and parasites. The rainy weather led to poorer fodder, which, together with the harsh winters, weakened the animals. Both beef and dairy herds

The severe famine of the Middle Ages drove the hungry and desperate to cannibalism. This scene comes from Russia.

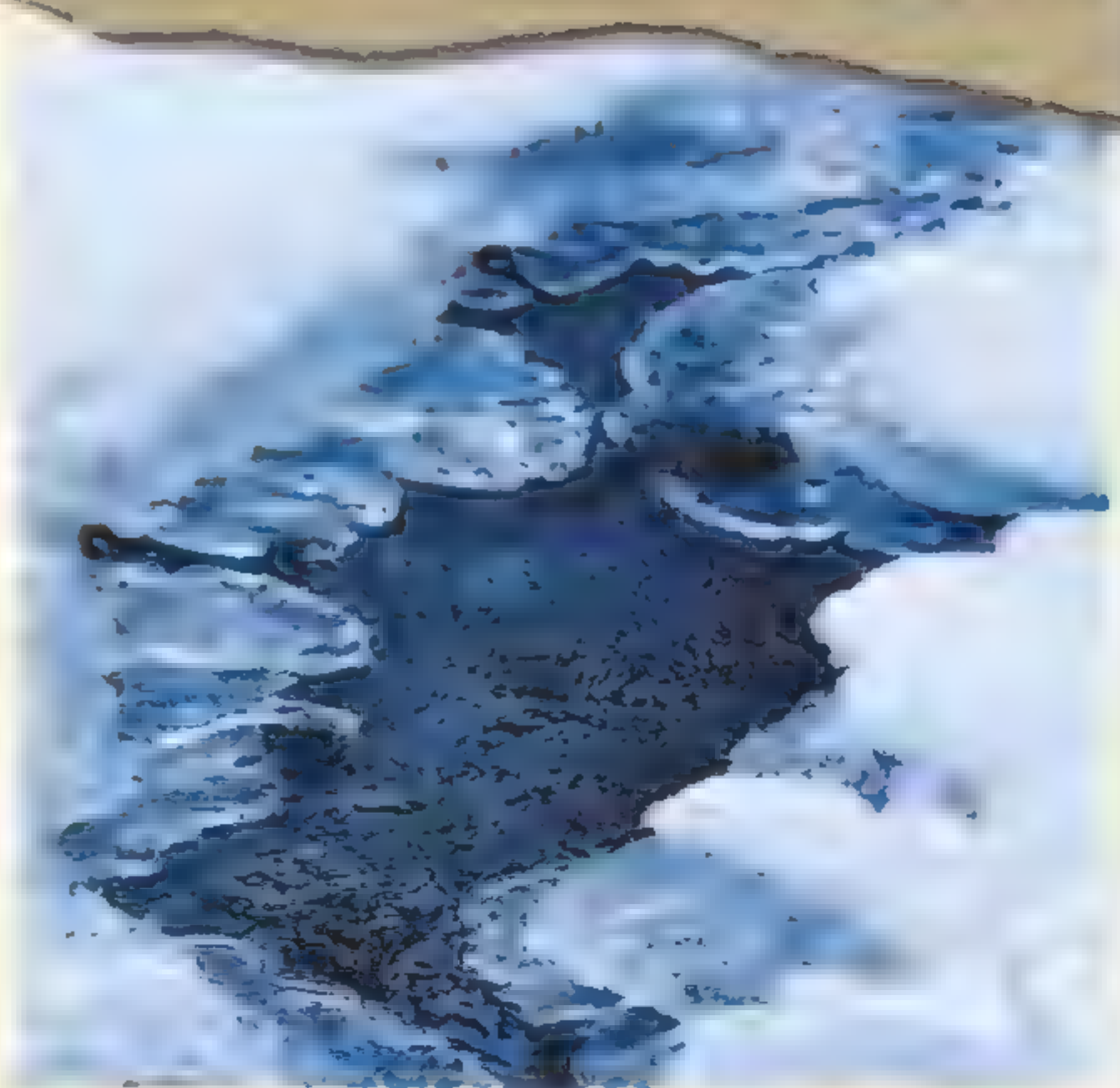


DECISIVE MOMENTS

THE LITTLE ICE AGE

At the beginning of the 14th century, Europe's mild climate changed drastically. It experienced a period of icy winters and extremely wet summers, known as the Little Ice Age. In the winter of 1315-16, the Baltic

Sea froze, and this was repeated in 1321-22, when parts of the North Sea were also covered in ice. The winter of 1316-17 was deemed the most severe: the cold and rain caused the harvest to fail and led to the Great Famine.



were affected by infectious disease, probably rinderpest. They foamed at the mouth and nose, and were riven with diarrhoea, which led them to decompose quickly after death. In the years 1316-1317, for example, more than 2,000 sheep in a northern English monastery's flock died. And between 1319 and 1322, the same monastery lost 86 oxen and 194 cows.

The animals' deaths proved disastrous for farmers, who depended on cattle to pull their ploughs and on the meat of all kinds of livestock to feed their families. The shortage of both meat and grain likely caused prices to rise dramatically. An English poem from 1327 reveals how bread became expensive: "A bushel of wheat was at four shillings or more, Of which men might have had [for] a quarter before."

As a result, Europe's medieval inhabitants had to find alternative ways to survive. One Irish chronicle claimed that from 1315 to 1318, "people used to eat one another," while another annal recorded that in 1317, the Scottish and Irish population in Ireland's Ulster province in the north of the country were reduced to eating corpses: "They were so destroyed by hunger that they extracted bodies of the dead from cemeteries and dug out the flesh from their skulls and ate it," the chronicler wrote. The annal also claimed that women ate their

“ They were so
devastated by hunger that
they dug up bodies ”

children to survive. Similar stories spread in Poland:

“In many places parents devoured their children and children their parents; also many ate the flesh from cadavers [hanging from gibbets].”

Scholars have debated the credibility of the stories about cannibalism. Some believe that the macabre accounts should not be taken literally, but rather as retellings of passages about cannibalism from the Bible's Book of Deuteronomy. Such stories arose to emphasise the scale of the misery.

FORCED TO BEG

The Great Famine forced many peasants to beg for food, but in such a crisis, alms alone couldn't keep them alive, so beggars often died of starvation. Many towns had to





HUNDRED YEARS' WAR 1337-1453: England's King Edward III had just defeated French forces in the first major battle of the Hundred Years' War at Crécy in 1346, when he turned his attention to Calais. The fortified port on the English Channel was perfectly situated to receive supplies.



REBELLION: In 1382, French King Charles VI put down local Flemish rebellions. He became known as Charles the Mad because of his mental illness.

introduce communal burials and mass graves to dispose of the dead beggars. Abbot Gilles li Muisis, who lived in the French-speaking city of Tournai, claimed that by 1316 so many beggars had died and were piling up in mounds in the streets that the city council began paying people to carry the bodies out to the countryside to bury them. Starvation, however, claimed more than poor urban beggars.

"Men and women from among the powerful, the middling, and the lowly, old and young, rich and poor, perished daily in

such great numbers that the air was fetid with the stench," the abbot recounted.

Across the Low Countries people died at twice or three times the normal rate. Although nothing would match the catastrophe of 1315-1322, Europeans regularly experienced new famines. Southern Europeans were already starving in 1347, just before the first plague broke out, making them particularly susceptible when the disease struck. Yet hunger was far from the only killer in 14th-century Europe. A seemingly endless war was also on its way.

ONE HUNDRED YEARS WAR BROKE OUT

One day in 1339, the northern French village of La Capelle-en-Thiérache received unexpected visitors. A horde of English soldiers came out of nowhere to ravage and pillage the inhabitants' homes. A papal record of disbursements briefly and accurately recorded the village as "burned", but also described the misery the English soldiers had inflicted on the local populace.

"Very many of these [victims] were cultivators of the land and lived decently by their lands, and [now] do not dare to return to their inheritances, as all their homes are burnt, and they lost all their mobile property, and the cattle which nourished them and with which they tilled the soil," the papal report read.

At least 88 houses were burnt to the ground and the village's entry listed that all

families were now paupers or forced to beg. The English attack in 1339 was part of a two-week long *chevauchée* – a raid in which soldiers terrorised the population. The relentless English destroyed 187 villages in northern France.

At the time of the attack on La Capelle-en-Thiérache, France had been at war with England for two years. The two forces clashed mainly on French soil, and it would be over 100 years before the war-weary French finally saw peace return in 1453. The

conflict, known as the Hundred Years' War, was a struggle for power over north-west France, where England held sway over several territories, as well as English claims to the French crown. Although it is referred to as a single war, it was actually a series of conflicts interspersed

with periods of peace.

The Hundred Years' War ushered in a new form of warfare. For example, soldiers terrorised the general population to a greater extent than before. The purpose of the raids was probably to lure the opposing army into battle. As well as using plunder as a strategic move in the war, the loot also served as wages for the English soldiers, who often came from poor backgrounds.

The war on the battlefield also took a more brutal turn. Far more soldiers were slaughtered during the Hundred Years' War than in previous conflicts.

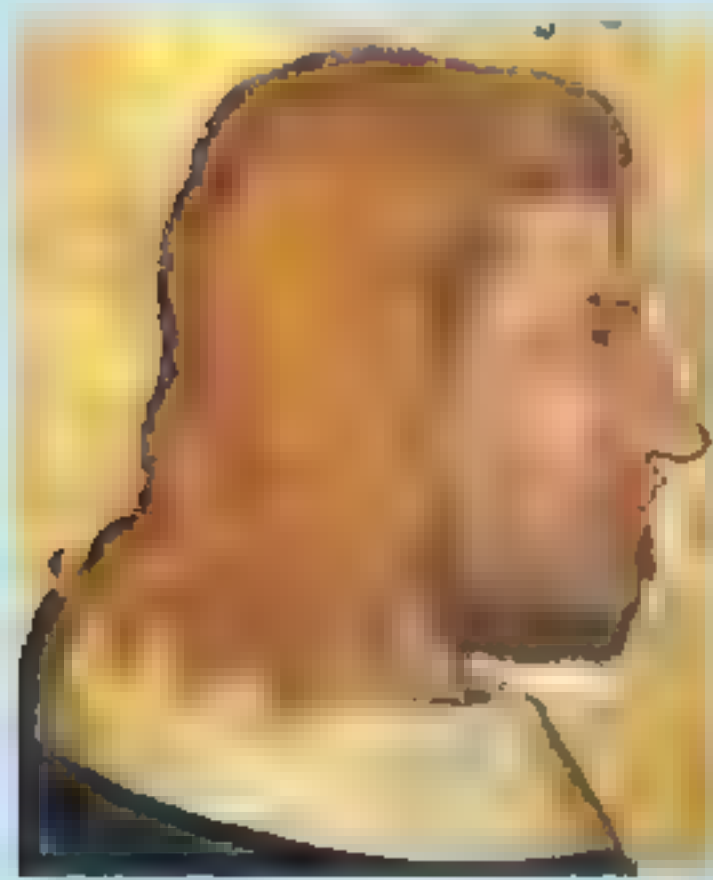
According to medieval sources, clashes took on a more savage character. One source

"A horde of English soldiers came out of nowhere to ravage and pillage the inhabitants' homes."

EYEWITNESS

POET FRANCESCO PETRARCH / 1361

FRANCE RAVAGED BY WAR

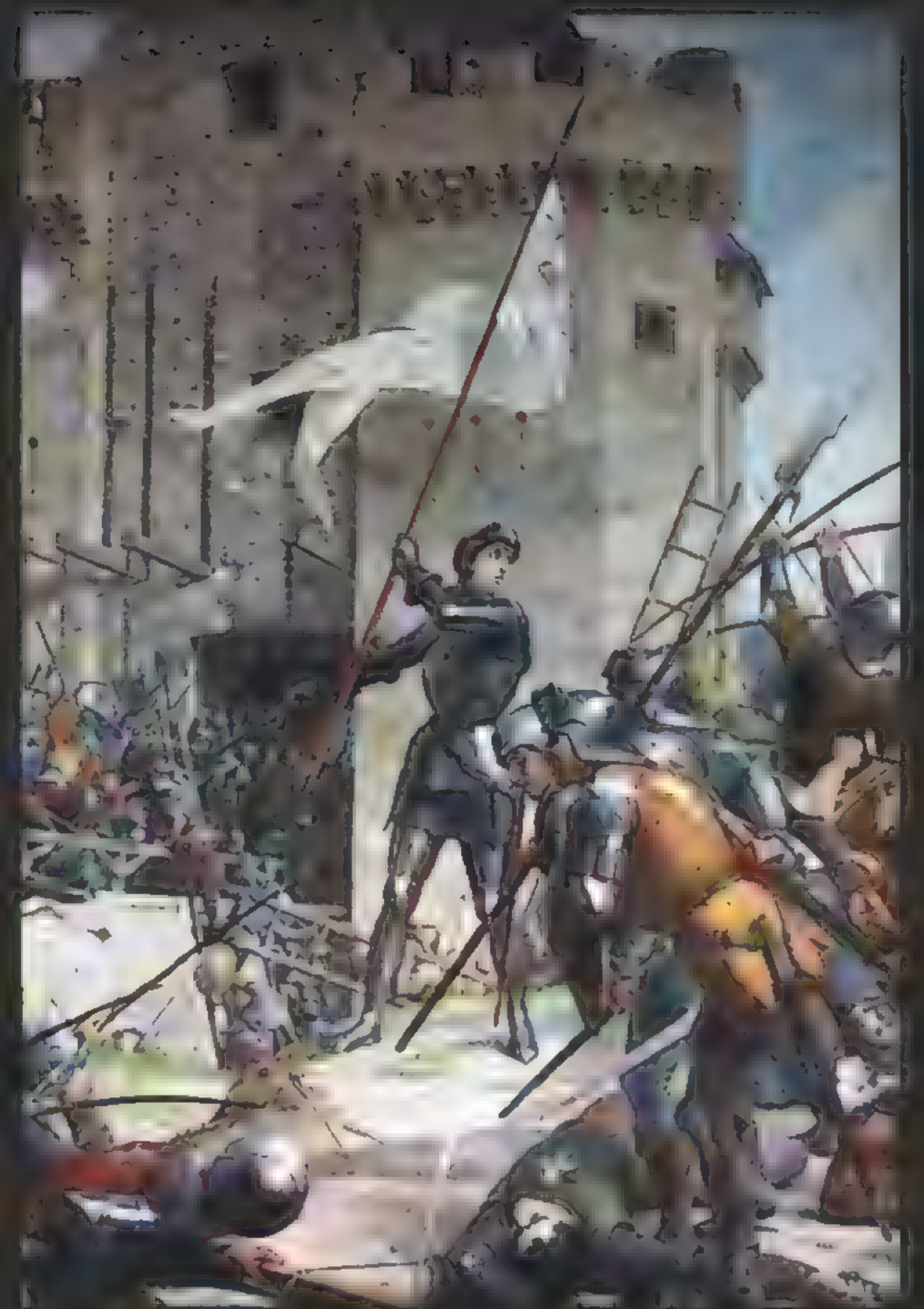


"As I recently passed through your kingdom [France] on an official mission, I could scarcely recognise it as the same one I had previously visited. Everywhere were

dismal devastation, grief, and desolation, everywhere wild and uncultivated fields, everywhere ruined and deserted homes except for those spared by being within the walls of a fortress or a city, in short, everywhere remained the sad vestiges of the Angli [English] and the recent, loathsome scars of defeat."



RAIDS: English soldiers travelled through French villages, looting and murdering the population. The aim was to lure the French armies into battle, but at the same time, the loot from the *chevauchée* raids served as the soldiers' reward for their service in the Hundred Years' War.



JOAN OF ARC: The brilliant female commander led the French forces that liberated the city of Orléans in 1429.

“In the town of Villach, the parish church collapsed in the middle of a service”

who described the first major land battle of the Hundred Years' War at Crécy in northern France in 1346 stated that the English army demonstrated no desire to take prisoners of war. The wounded and defeated French were mercilessly slaughtered by the long knives of the English.

“Whether they were counts, barons, knights or squires, they killed them without mercy,” he reported. Historians cannot know if the source is true, but it suggests that the Hundred Years' War's combatants had forgotten the chivalry of the past.

Only a year after the Battle of Crécy, the plague struck Sicily and spread across Europe within the space of a few years. War-torn civilians now had a new enemy to fight. The Black Death travelled up the coast of Italy when a violent earthquake shook the peninsula's inhabitants.

EARTHQUAKE STRUCK EUROPE

The Italian poet Francesco Petrarch was absorbed in his library in Verona when he

was suddenly torn from his thoughts: “The floor shaking under my feet, and the books tumbling upon one another from all sides, I was dazed. Stepping out of my room, I saw my servants, and, soon after, the townspeople, trembling and staggering; a deathly pallor was on everyone's face,” the poet recounted in a letter to the Bishop of Genoa some 20 years after the event.

Petrarch had witnessed a violent earthquake that, in the mid-afternoon of 25th January 1348, shook the whole of northern Italy for as long as a minute, and was felt as far away as Austria, Slovenia, Bavaria, Bohemia and Hungary. The natural disaster left large parts of northern Italy, Austria and what is now Slovenia in ruins. Magnificent castles and entire towns collapsed, leaving huge piles of rubble where survivors endeavoured to search for missing family members. In the town of Villach, the parish church collapsed in the middle of a service, killing, according to historians' estimates, up to 500

worshippers: 75 percent of the small town's populace.

Just eight years later, the scenario was repeated further north when powerful earthquakes struck the Swiss city of Basel in the late afternoon of 18th October 1356. The cathedral's chancel and one of its towers collapsed, fires broke out and people fled the city in panic. As they returned to their homes in the evening, an even stronger quake hit the area and many people were crushed under blocks of stone as parts of the perimeter wall collapsed.

Debris from Basel's collapsed houses filled up the River Birsig, causing it to overflow its banks. The river water flooded the streets and entered the cellars of the houses, where food stores were soaked and subsequently spoiled by the incoming floodwaters.

The powerful earthquake probably caused around 60 castles around Basel to collapse, and inside the city

The English king levied higher taxes to buy weapons for the war against the French.



“They beat and whipped their bare skin until their bodies were bruised”

The Swiss Franciscan monk Johannes von Winterthur noted in a sombre moment that the earthquake of 1348 and the plague were evil portents of doom. He referred to the Gospels of Matthew and Luke in the Bible, where Christ explained to the disciples the signs that would herald Judgement Day: earthquakes, pestilence and famine.

Many believed that the disasters could only be God's punishment for man's sins and wickedness, and to appease the angry Almighty they desperately tried to make amends for their sinful lives. One religious movement in particular, the so-called flagellants, went to extremes. They repented to the point of bloodshed.

WHIPPED UNTIL THEY BLED

A storm raged over the Austrian town of Styria in September 1348, when flagellants paraded through the streets for the first time. Dressed in rags, they chanted monotonous songs as they slowly staggered along. Outside the city, torrential rain had flattened the grain and vines in the fields. By punishing themselves, the flagellants tried to persuade God to forgive man and raise the harvest again.

According to his chronicle, the Dominican monk Heinrich of Herford witnessed the flagellants' procession in Styria and described the spectacular event:

“Using these whips they beat and whipped their bare skin until their bodies were bruised and swollen and blood rained down, spattering the walls nearby. I have seen, when they whipped themselves, how sometimes those bits of metal penetrated the skin so deeply that it took more than

two attempts to pull them out,” he noted. “One would need a heart of stone to be able to watch this without tears,” the horrified monk added.

The flagellants were named after their instrument, a three-tailed whip with a small sharp iron cross at the end of each tail, known as a flagella. They often used this type of whip to beat their backs. The religious sect had originally emerged in the 13th century but surged in popularity with support from rich and poor alike after the outbreak of the plague in 1347.

In the latter half of 1348, the Brotherhood of the Flagellants travelled from town to town in Hungary, Austria, Switzerland, Germany, Poland, France, the Netherlands and England, performing their penances.

The ritual followed the same pattern across Europe: wearing hoods or hats with a red cross,

members of the movement walked in groups towards the local church, where they undressed and wrapped a cloth around their waist before marching in song towards the central square. On the way, they whipped their backs bloody.

CHURCH BANNED FLAGELLANTS

Many people initially greeted the flagellants with great sympathy. They admired their extreme self-sacrifice in the name of God. But after only a few years of blood-soaked processions, support for the religious brotherhood gradually dissipated. This was mainly because the Catholic Church and some European kings turned against the movement because they felt the flagellants threatened their authority.

The movement died out in the early 1350s, when the Pope himself forbade them to perform their penance.

The flagellants' self-sacrifice did not make the calamities disappear. Throughout the 14th century, Europe's inhabitants continued to experience new plague outbreaks, more wars, famine and recurring earthquakes. Thankfully, however, doomsday preacher Thomas Wimbleton's gloomy prophecy in front of Old St Paul's Cathedral in London never came to pass. ■

The flagellants' whips were equipped with small, sharp metal crosses at the ends of the ropes that pierced deep into their skin.

itself fires raged for days. Apart from the wealthy city dwellers who fled to their remote country estates, Basel's citizens had to spend the nights in gardens, barracks or under canvas in camps outside the city, where they starved and fell ill. Others took advantage of the disaster to loot the ruins.

The tremors of 1348 and 1356 were just two of a long series of large and small earthquakes that struck the European continent from 1328 to 1390.

A CENTURY OF DISASTERS

Changes in the weather, crop failures, cattle deaths, war, plague and earthquakes led many Europeans to believe they were approaching the final days of humanity.



CULTURE.....

ECONOMY....

DAILY LIFE..

Werewolves were burnt at the stake

In the late Middle Ages, Europeans experienced a wave of accusations against alleged werewolves. If found guilty, an agonising death at the stake awaited the accused. The notion of werewolves is thousands of years old, but in the early

15th century, many kingdoms changed their laws so that, unlike before, their subjects could not be punished for making false accusations. They could now hang nonconformists or personal enemies without any fear of consequences.







THE WATERMILL TOOK THE STRAIN

8000 BC–1400 AD



Silence fell in the once-bustling workshops and fields were left unharvested when the Black Death swept across the land. The plague took a heavy toll on the population, and the survivors struggled to keep up with production in agriculture and small-scale industries.

Fortunately, technology came to the rescue. Numerous technological marvels had been invented or rediscovered during the Middle Ages, and they now became essential. In particular, watermills replaced manual labour in flour mills, forges and textile manufacturing.

8000 BC–1400 AD

8000 BC
Ploughs are
used to cultivate
land in ancient
Mesopotamia.

9th century
Farmers
harness
draught
animals.

1086 The
Domesday
Book records
over 6,000
watermills.



12th century
Windmills
become
widespread in
Europe.

1400 The
price of
iron triples
in just
50 years.

8000

800

1086

1100

1400

As the Black Death made inroads into the population, daily work in agriculture, mines and medieval workshops ground to a halt. Grain lay unharvested in the fields and livestock wandered the wilds, lost without their cow herds and shepherds. The rhythmic pecking of miners' axes was silenced. Without sufficient labour, technology was the only way to plug the gap left by the dead. The ravages of the plague set waterwheels and mill blades spinning across Europe. The technology used wasn't always new, but it suddenly took on increased importance – leading historians to refer to the period as one of small-scale industrialisation.

WATERMILLS EASED THE BURDEN

The most important of all the technologies adopted was the watermill – a device that had been known in its simplest form as far back as ancient Greece, but which had only recently been rediscovered, refined and put to use on the Middle Ages' rivers and streams. The concept was simple: the water's force spun a wheel fitted with paddles, with the resulting rotational energy being transferred to heavy machines, such as grinders, saws and drop hammers.

Whereas the Greeks had constructed horizontal watermills, medieval engineers set the wheels vertically so that the water either spilt down on them from above or flowed under them. In shallow rivers, the wheels had to be fixed so that the water

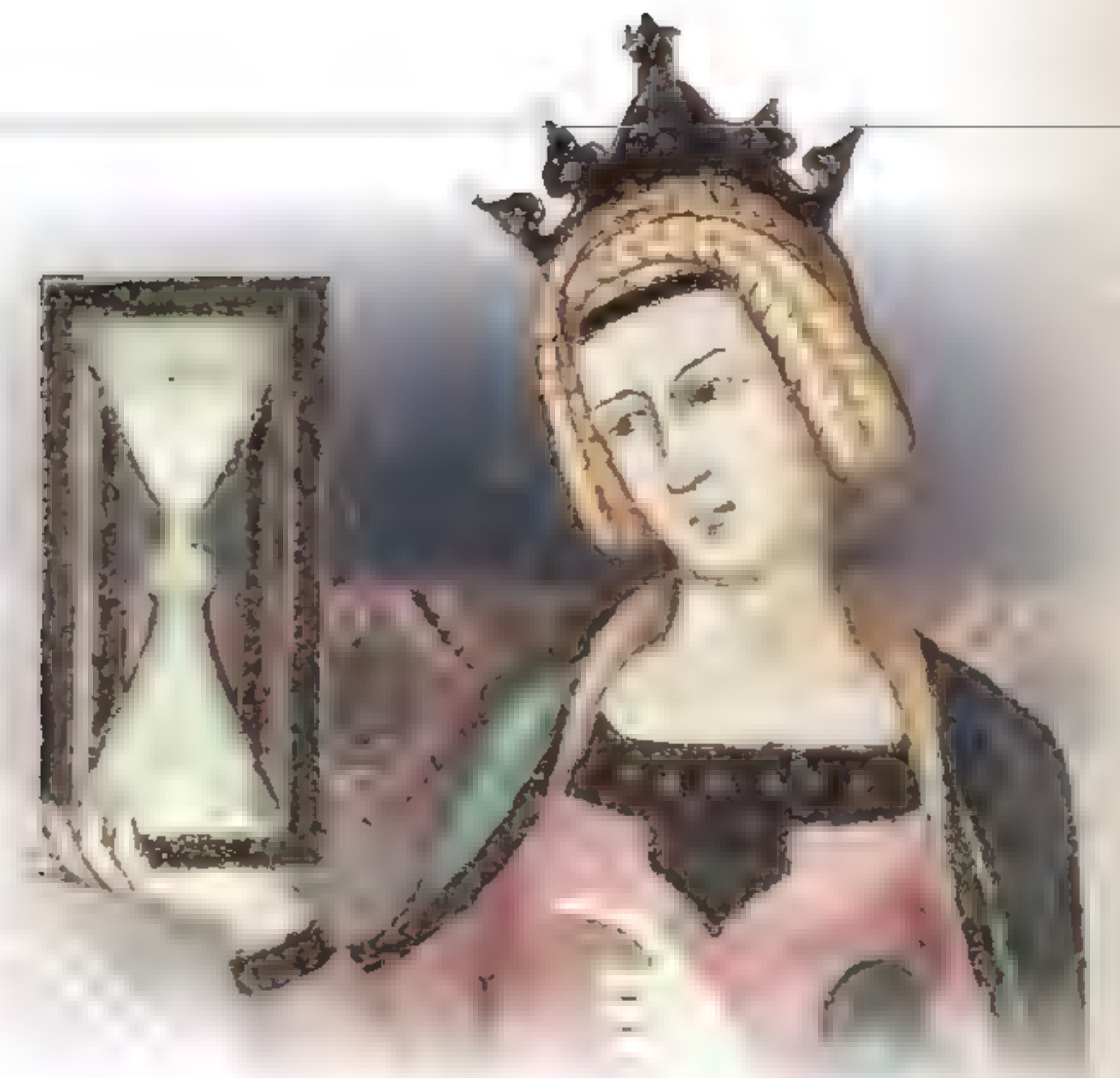
flowed beneath. Unfortunately, this meant only 20-30 percent of the water's force could be used. It also caused silt and sand to clog the machinery. On the other hand, if the watercourse ran down a slope, it could be channelled so that water fell onto the mill wheel. This arrangement transferred 60-80 percent of the force, leading to its widespread use wherever nature allowed it. In some places, people also utilised ebbing and flooding tides to drive the machinery.

Nendrum Abbey in Northern Ireland has the earliest excavated example of a tide mill. It dates from AD 787.

The watermill made work easier for farmers in particular. Much of the labour of peasant families consisted of grinding grain into flour so that women could bake bread. Each mill consisted of two large, disc-shaped stones. Grain was placed between them, and when the top stone was turned, the grinder ground the grain. By hand, it was hard, slow work – it could take one person a whole day to grind flour for the family. However, if a watermill powered the grinder, people could expend their energy on other tasks.

The vertical waterwheels required a gear system to translate their vertical rotation to the horizontal motion needed by the stone grinder. In Ireland, however, people built horizontal mills – like the Greeks – that turned the stone grinder directly.

Watermills became so widespread that over 6,000 were recorded in England in the *Domesday Book* in 1086. However, it was an expensive technology that individual farmers could rarely afford. Instead, they could pay to have their grain ground by the



The sand hourglass was a medieval invention. It was first depicted in a fresco found in Siena, Italy, dating to 1338.

local miller, on an estate or in a monastery. However, there are also examples of farmers coming together in a kind of cooperative to share a mill.

WINDMILLS WERE AN INNOVATION

The shrinking population also developed other types of mills. The windmill, for example, was a medieval innovation. It had the advantage of being able to spin all year round, as long as the wind was blowing. Watermills, on the other hand, stood still during the harsh winter months when rivers froze over.

Ninth-century records from Baghdad describe the earliest known example of a simple windmill construction. Afghan sources from the 10th century mention a large windmill. In Europe, windmill blades began to turn during the 12th century. Evidence of their spread can be seen in the law passed by Pope Celestine III towards the end of the century, which imposed a tax on windmills because they were so profitable for their owners.

The earliest wind turbine designs differed from later versions because the entire turbine housing rotated to turn the blades towards the wind. The housing was built on a pole, a fragile structure that limited the size of the turbines. Historians believe that the modern version, where only the top of the mill and the blades turn, was probably developed in the late 14th century but did not become popular for another two hundred years. Like watermills, windmills were often used to power millstone grinders to convert wheat into flour.

While grinding grain was essential for putting food on the table, metals such as iron, silver, tin and copper were indispensable for building houses and cathedrals, casting cannons, minting coins and constructing armour. Medieval people took shovels and pickaxes underground in their search for metal ore, but they had to dig ever deeper to find the coveted veins.

The arduous manual labour took its toll on the body, and matters weren't any better deep down in the dark, unventilated mine shafts. Dust entered the miners' lungs, causing shortness of breath, burning eyes and chronic headaches. The supporting structures of the shafts were often rickety and workers risked broken bones, crippling

ENGLISH PEASANTS REBELLED OVER TAXES

In 1381, a tax levy to pay for the war against France led English peasants to revolt. The trouble started when the inhabitants of the village of Fobbing refused to pay the new tax. When the authorities sent men to arrest their

leaders, violence erupted. The rebels marched on London, and put their arguments to King Richard, but while the monarch seemed initially to sympathise, the spokesman, Wat Tyler, was killed soon after.

DECISIVE MOMENTS



WATER REPLACED MANUAL LABOUR

The watermill was the great technical marvel of the Middle Ages. Instead of wearing out their arms and backs grinding grain or crushing iron ore, craftsmen used the watermill to do the heavy work. Using a simple gear system, water power could be transferred to a range of tools.



- ① Water from a watercourse was channelled into a waterwheel. As the water pushed against the wheel's paddles, the wheel started to spin.
- ② The waterwheel's rotation was transmitted to a shaft with a primitive wooden cog on the end.
- ③ A gearing system consisting of two cog-wheels transferred the force from a vertical rotation to a horizontal one.
- ④ The horizontal cog-wheel drove a grinder consisting of two stones that crushed grain as the top stone spun over the fixed bottom one.
- ⑤ The grain was fed into the stone grinder via a chute.

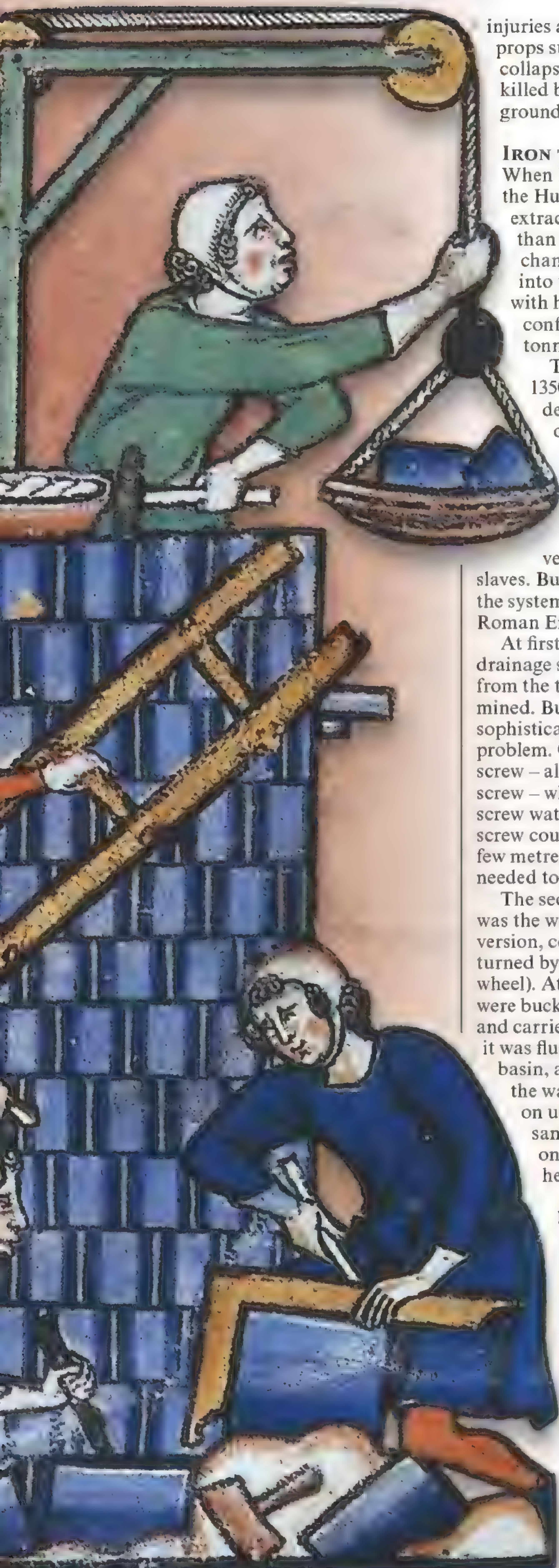


Watermills could also drive a saw in a sawmill. The rotating shaft had a disc at the end that made a rod move back and forth – like an arm holding the saw.

In the forges, watermills helped blacksmiths crush ore before it was added to the furnace. The system drove large drop hammers that crushed the ore more efficiently than by hand.

Woollen textiles had to be fullled to make them tight and smooth. Workers used to pound the fabric in vats of water, but watermills could do the same job with two giant wooden hammers.





injuries and even death if the wooden props supporting the tunnel ceilings collapsed. Some mine workers were killed by rockfalls or drowned when groundwater flooded the mines.

IRON TRIPLED IN PRICE

When England and France embarked on the Hundred Years' War in 1337, metal extraction became more important than ever. The warring nations channelled enormous amounts of iron into their respective war industries, with historians estimating that the conflict cost each side a million tonnes of the metal.

The price of iron tripled between 1350 and 1400, and the increase in demand added to the pressure put on miners. Groundwater seeping into deep mine shafts was a particular problem. During the heyday of the Roman Empire, skilled engineers had pumped water out of mine shafts using vertical water wheels driven by slaves. But the technical know-how behind the system had been lost with the fall of the Roman Empire centuries earlier.

At first, medieval engineers simply dug drainage shafts to divert groundwater away from the tunnels where ore was being mined. But over time, they developed more sophisticated methods for dealing with the problem. One of these was the Archimedes' screw – also known as a hydrodynamic screw – which worked, like a giant drill, to screw water upwards. However, each water screw could only transport the water up a few metres, so a series of screws were needed to pump water out of a deep mine.

The second invention – or reinvention – was the waterwheel, which, like the Roman version, consisted of a large treadmill turned by a labourer (like a hamster on a wheel). Attached to the outside of the wheel were buckets or rags that collected water and carried it to the top of the wheel, where it was flushed into a basin. From this basin, a second water wheel could direct the water further upwards again and so on until it reached the surface. The same type of treadmill was also used on building sites when particularly heavy materials had to be lifted.

These innovations meant that by the 15th century, English miners could dig shafts as deep as 50 metres. Once the iron was lifted from the mines, it had to be shaped into swords, shields, armour and tools. The iron ore was first washed and then fired to burn away impurities. The smith then crushed the clean material and placed it in a furnace, where the iron ore reacted with carbon, which

Technology made work easier on construction sites where heavy loads were lifted with treadmills.

DOUBLE-TREE YOKE SPED UP PLOUGHING

In the 11th century, Europeans discovered a way to harness more animals to the plough.



- ① With a double-tree yoke, farmers could hitch oxen together in pairs.
- ② The spreader bar evenly distributed the team's force.
- ③ Farmers could plough faster or in heavier soil with four animals.

was important if the metal was to harden later. The result was a soft mass of red-hot iron, which the smith could then hammer into shape against an anvil. Once the iron was forged into a weapon or tool, the smith would quickly quench it in cold water to harden the material.

DROP HAMMERS CRUSHED IRON ORE

The process of extracting ore and processing it was slow and the iron industry struggled to keep up with demand, but from the 11th century, ironworkers could crush the ore with heavy, watermill-powered drop hammers. These scaled-up tools were capable of processing much larger quantities than the blacksmith could manage by hand. Smithies' watermills became more important than ever.

The watermill was also connected to bellows to make the furnaces burn hotter, and by the 14th century, blacksmiths had reached such high temperatures that they could melt the ore to produce cast iron. Unfortunately, these new, more-efficient higher-temperature furnaces were costly to build and operate, so traditional iron-ore processing remained the preferred method

“ The watermill was also connected to bellows ”

in many blacksmiths for a long time afterwards.

HEAVY PLOUGHS

The loss of labour caused by the Black Death made the tough life of rural peasants even more gruelling, with one person often having to do the work of two.

Farm labourers rose from their simple straw beds at dawn. Most of them shared the same room – although some slept in the barn or stable with the animals. After milking, the animals would be turned out to pasture and then the day's field work would begin. The labourers would plough the field crosswise – that is, twice – with small and simple ploughs. But before long, small technological advances revolutionised ploughing. The earliest plough can be traced back to Mesopotamia in 8000 BC, but in the Middle Ages, farmers improved the design. One of the most important innovations was

the heavy wheel plough. It had a much heavier blade that could more easily cut through northern Europe's heavy, wet soil. With better-tilled earth, fields yielded more, which allowed families to grow as they could feed more children.

Another significant invention was the development of chest harnesses for the horses and oxen pulling the plough. Animals had previously pulled the plough using a rope that was looped around their necks. The system prevented them from using their full energy. Worse, the harder they pulled, the more the rope chafed and if things went badly wrong, the animals could even choke themselves. The new chest harness became widespread during the 10th century. Some time later, farmers also developed the spreader bar, which helped distribute the force when harnessing a team of animals to the plough.

In addition to new inventions, peasants in the early Middle Ages also changed the way they cultivated their crops. They moved away from the old two-field system, where half of the land being farmed would be planted and half left fallow, with the planted and fallow fields alternating each year. Instead, fields were divided into three parts. Farmers sowed one third with wheat or rye in the autumn or winter, one third with peas, beans or other vegetables in the spring, while the third part of the field lay fallow. Each year, the planting scheme rotated so that the land either grew new crops or was allowed to rest. In this way,

Blacksmiths forged iron with an anvil. But during the Middle Ages, they also learnt different ways of casting iron.



FISHING: This painting from 1411 shows how fishermen in the Middle Ages propelled their boats with paddle wheels. They worked like later paddle steamers, but without the steam.

farmers utilised two-thirds of their land rather than half, while ensuring the soil didn't become nutrient deficient. A side benefit of the new system was that the spring crops consisted mainly of vitamin-rich vegetables, giving peasants a healthier and more varied diet.

NEW TECH AIDED TEXTILE WORKERS

A lack of farm labourers to cultivate fields meant that many landowners turned to keeping sheep, which largely looked after themselves. The resulting wool was used to produce textiles, which developed into one of the largest industries of the Middle Ages. Over time, production moved from small peasant homes in the countryside to larger workshops in towns and cities.

Textile workers first carded the wool and washed it. Once the material was clean, spinners spun the yarn – in the early Middle Ages, this was done with a simple handheld spindle and distaff. During the 13th century, the spinning wheel was introduced into Europe, heralding a huge advance in the industry. The traditional spindle became redundant: the large wheel could produce woollen yarn much faster.

Spun yarn was sometimes coloured with vegetable dyes. The spinners, who were always women, left that task to the weavers, who were often men. The weavers' tools were also refined during the Middle Ages. In the 11th century, a horizontal loom that could separate alternate warp threads at the touch of a pedal replaced the upright loom. The new loom allowed the weaver to pass the weft yarn through with warp threads in a single movement. Finally, the finished woven fabrics had to be fulled to create a smooth, tight finish. Fullers would beat the clothes in large vats of water, but moving the heavy, wet fabric was physically exhausting. The water-powered fulling

TECHNOLOGY



CULTURE.....

ECONOMY..

DAILY LIFE..

Watermills fuelled paper production

In the Middle Ages, European paper makers began to turn to the watermill. Water power drove tools that mashed the plant fibres, which were then poured into frames and dried. The fibres were derived from the same sources as in modern paper

production: hemp and wood. The method was not invented in Europe. People in China and the Middle East had been making paper like this for centuries. Paper became a key commodity at this time, especially after the printing press was invented.

mills that appeared in the 12th century, therefore, provided welcome assistance. The new mills drove large wooden hammers that pounded the textiles through a drum of water. Textile workers could now simply take the fulled woollen fabric out of the drum, stretch it and then lay it out to dry before giving it a final brush to apply a neat, even finish.

SOCIAL UPHEAVAL

One problem the new inventions could not solve, however, was the exploitation of poor peasants by landlords. The tenant farmers toiled in estate fields to eke out a basic living, while the landlord reaped the profits of their labour and grew increasingly wealthy.

However, the Black Death changed the relationship between peasants and lords in many places. The plague wiped out such a large proportion of the population that landowners suddenly found it difficult to recruit farm labourers. The survivors, on the other hand, were in a stronger position because their labour was in high demand. Tenant farmers were, in principle, bound to

their lord, but in the chaos that followed the plague outbreaks, the rules became almost impossible to enforce. Farm labourers were therefore given an opportunity to serve the highest-paying landowner.

In England, a war on wages broke out as landowners tried to lure peasants to their estate by offering higher pay. In some instances, labourers earned up to five times more than they had before the Black Death. According to some medieval sources, the English peasantry started to earn so much money that they could afford to replace their coarse woollen garments with silk robes adorned with fur collars. In 1351, however, Edward III intervened and ordered a pay freeze on peasants' wages: their wages were reset to the level they were at the year before the plague broke out. Similar laws were introduced in France, Germany and Italy.

The devastation wrought by the plague didn't just mean higher wages – some peasant families took over abandoned farms and cultivated their own fields instead of the landowners'. This led to better food, healthier children and bigger families. But it would still take more than a century for the population to grow again. ■

7 years – that was how long it took to train as a craftsman under the medieval guild system.



GLASSBLOWING : The ancient tradition of glassblowing flourished in medieval workshops, especially in Italy. Glassblowers made drinking glasses, vases and stained glass for churches.



FABRIC DYEING: Plant dyes added colour to textiles. Often oak bark was used to create brown cloth, but vibrant colours were possible. Red dye came from madder plants, while blue was from woad.



The background of the page is a medieval manuscript illustration. It depicts a landscape with a deer leaping across a rocky path. In the foreground, two knights on horseback are shown. The knight on the right is on a brown horse and wears a patterned surcoat, holding a lance. The knight on the left is on a white horse and wears a red surcoat, holding a shield. The scene is set among various trees, including a tall, thin tree and a bush with red fruit. The sky is filled with birds.

FAREWELL TO DARKNESS

1348-1494

When the plague finally subsided in the autumn of 1348, people were ready to put God to one side and take charge of their own destiny. The result was a flowering of art, culture and science the likes of which the world had never seen, and which history would come to label as the Renaissance – the rebirth. That Europe's renaissance should take place in Florence was no coincidence. When the plague subsided, the city had both wealthy and enterprising men ready and eager to seize the opportunity.

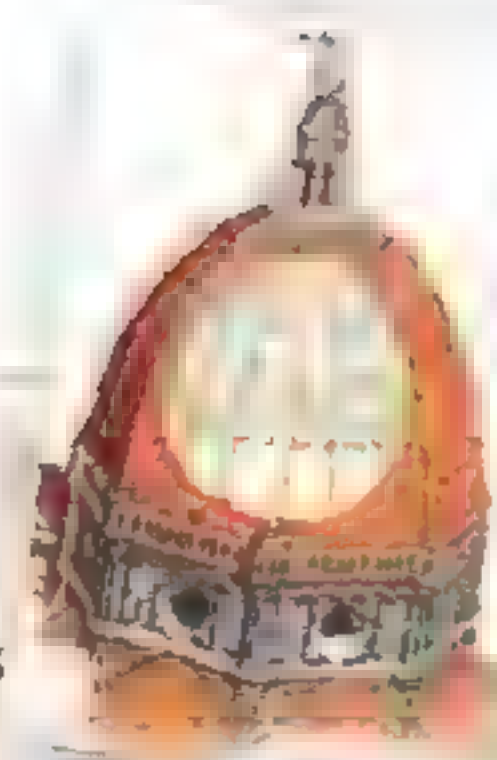
1348-1494

1348 After six devastating months, the plague leaves Florence.

1386 Giovanni de' Medici marries a rich noblewoman.

1434 Cosimo de' Medici becomes ruler of Florence.

1434 Florence Cathedral gets a new, large dome designed by Filippo Brunelleschi.



1486 Sandro Botticelli paints *The Birth of Venus*.

1494 Piero de' Medici is expelled from Florence by angry citizens.

1348 1386 1434 1486 1494

The plague was slowly loosening its grip on Florence. The piles of corpses had vanished from its narrow streets, which now once again filled with children at play. The sound of carts loaded with plague victims rumbling over the cobblestones on their way to the cemeteries outside the city were gone. Meanwhile, Giovanni Boccaccio put pen to paper. With subtle humour and mischievous whimsy, he wrote about everything that was the opposite of plague and death – life, curiosity and eroticism bubbled out of the pages of *The Decameron*, published around 1350.

The life-affirming book heralded a new era in which, after centuries of domination by the Pope and Church, Europe's citizens freed themselves from the shackles of religion.

During the plague, the Almighty had failed His followers. Despite penitential efforts in which men, barefoot and covered in ashes, had whipped themselves bloody while pleading with the Lord to halt the terrible disease, the plague continued. When it finally subsided, people were ready to push God to the background and take control of their own lives. The result was a flowering of art, culture and science, the likes of which the world had never seen, and which posterity would come to call the Renaissance – rebirth.

CRUSADES MADE CITY STATES RICH

It was no coincidence that the rebirth of Europe should take place in Florence. By

the time the plague subsided in the autumn of 1348, it had already established itself as a city on the rise. Florence's new wealthy class emerged thanks to both a benign climate and the ability of its enterprising citizens to take the new opportunities offered to them.

Northern Italy could not have offered better conditions for prosperity. The climate was mild and its soil lush and fertile, while port cities provided easy access to the Mediterranean's thriving markets and rich civilisations.

At the same time, during the Middle Ages, humanity had managed to adopt new methods of cultivation, increasing both crop yield and quality.

The printing press, invented by Gutenberg in c 1440, helped the Renaissance's new ideas to circulate faster.

New land was cultivated, and both the region's rural population and its landowners cashed in. Agricultural surpluses were exported to the

towns and cities, and what couldn't be consumed there could be sent even further afield to other towns or across the sea to markets in distant ports.

Demand from the armies of fervent Crusaders sent by the medieval Church to fight the Muslims in the Holy Land proved particularly lucrative. They required ships, horses and provisions to transport them across the Mediterranean to the Holy Land, and paid well in return.

Later, when the Crusaders established their own countries and cities in the Middle East, the northern Italians profited from supplying goods and provisions as well as from the trade that emanated both from the



The Medici family's coat of arms, sporting a pair of large crossed keys and six balls (one decorated with lilies), adorn several buildings in Florence.

Crusader states and from the trade routes that connected the region to the Far East. Throughout the 12th and 13th centuries, an armada of northern Italian ships ploughed through the Mediterranean waves, laden with Eastern spices, fine Chinese silk, sugar cane, olive oil and precious stones.

Pisa and Genoa, located to the west on the upper part of the Italian 'boot', and Venice, located in the innermost bay of the Adriatic Sea, enjoyed the best access to the Crusader states. But the high demand for goods spread to the other cities of northern Italy. Florence, too, soon prospered and, unlike the other states, had the foresight to set up a banking system so that merchants could borrow or exchange currency to operate in the monetary economy that had replaced the barter system of earlier times.

PLAGUE WAS BRUTAL TO FLORENCE

Florence had been hit hard by the plague. Despite the city's wealth, the streets and houses were laid out and maintained in medieval style. Only the very richest could afford airy mansions, while everyone else had to cram into small houses in narrow, dark streets. The poorest families lived together in one room. In these close and often unhygienic surroundings, the infection spread quickly and soon bodies piled high in the streets.

Historians estimate that around 65 per cent of Florence's population lost their lives during the epidemic, which lasted an

COLLAPSED BANKS PAVED THE WAY FOR NEW PLAYERS

In 1343, when King Edward III of England refused to pay his debt of 1.3 million florins, he pulled the rug from under Florence's two main banks, Bardi and Peruzzi. Peruzzi closed immediately,

while Bardi held out for another three years, after which it too had to close. Its collapse paved the way for a new entrant, the Bank of the Medici, and the family's wealth and power exploded.

DECISIVE MOMENTS



RIVALRY CREATED DYNAMISM

After the collapse of the Roman Empire, there was no longer a central power in Italy. Instead, several strong city-states flourished. Many of them grew rich from seafaring and trade in the Mediterranean, while others became leaders in the textile and weapons industries. They were fierce rivals and were often at war with each other – with varying outcomes.

MILAN

VENICE

MILAN

- The city became a republic in the 12th century. It then grew rapidly to house 200,000 residents by 1300, making it one of the largest in Europe.
- Income came from its trade in textiles and arms. Power was concentrated in the hands of the Visconti family from 1311 to 1447, which allowed the city to expand at the expense of its rivals.

VENICE

- The city was a republic from the 12th century, its leaders drawn from the city's 200 leading merchant families.
- By the end of the 13th century, the city-state was the richest in Europe. Its income came from trade throughout the eastern Mediterranean, as well as shipbuilding and shipping. Its shipyard housed Europe's largest workplace.

FLORENCE

- The republic was formed in the 12th century and a century later grew to become one of Europe's most important trading hubs.
- Money came from finely woven woollen cloth, trade and banking. Its florin, a gold coin put into production in 1252, became the leading international currency. Pisa was a close rival.

GENOA

PISA

FLORENCE

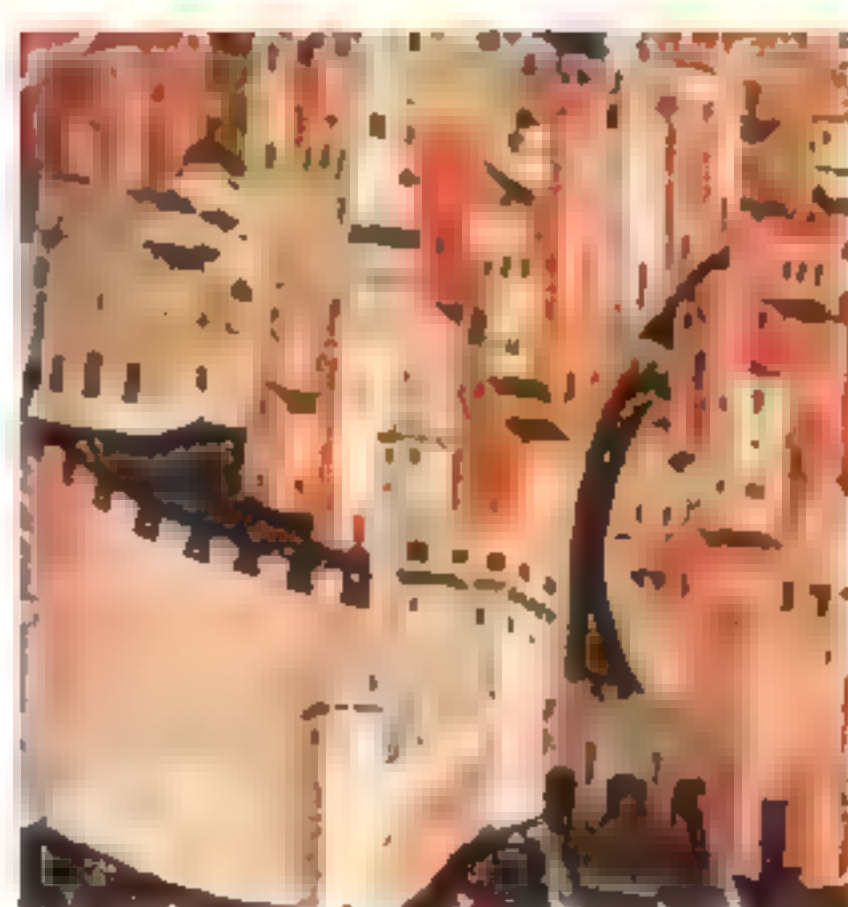
GENOA

- The city, a republic by 1100, possessed a large fleet that dominated the Tyrrhenian Sea, generating it income from shipping and trade.
- Genoa was also a major player in the slave trade. The city was almost constantly at war with other city-states: Pisa, Venice and finally Milan, which gained control of Genoa around 1400.

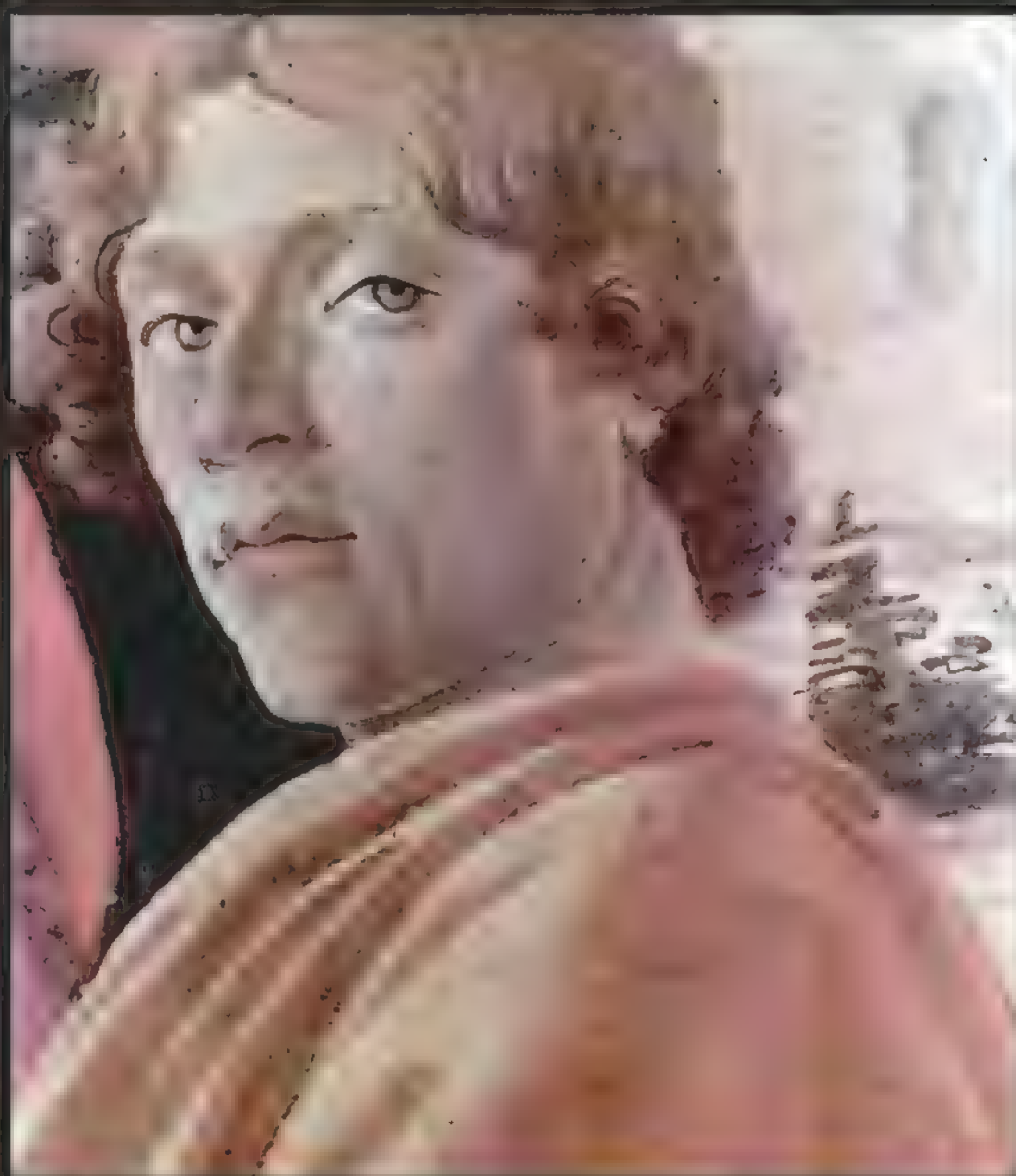


PISA

- The city-state became an independent republic in the 11th century and dominated shipping and trade in the Mediterranean, ruling Corsica and Sardinia until overtaken by Genoa.
- Pisa did not survive as an independent city-state, but was incorporated into Florence in 1406, where it remained until Italian unification in 1860.



0 250 km



ART: Naked bodies were a favourite subject for the painter Sandro Botticelli. In the Middle Ages, the body was associated with sin and so hidden away, but now it was being uncovered.



LITERATURE: Cupid rides triumphantly in a four-horse chariot in Petrarch's poem on love. The writers of the new age diverted their eyes away from religion and the soul when describing the inner life of man. Instead, they focussed on emotions and sensuality.

unusually long six months, compared to the four-to-five months experienced elsewhere.

"In all the city there was nothing to do but to carry the dead to a burial," recalled chronicler Marchionne di Coppo Stefani, who was 12 when the epidemic broke out.

When the disease finally subsided, however, there was both space and food.

Houses were empty and abandoned, the streets were no longer crowded, and markets were plentiful,

bringing prices down so that even the poorest had enough to eat.

Labourers who had previously had to make do with whatever vacancies

Music developed in a similar vein to the other arts, moving away from the church and developing a whole new range of styles.

and wages were on offer could now pick and choose in industries that were now desperately short of labour after the plague.

GOD HAD FAILED

Indeed, conditions became so favourable that the wool workers, who weren't permitted to organise in the highly stratified city, rebelled and – at least for a time – were permitted to have their own guild. Increased prosperity also allowed Florence to militarily subjugate the neighbouring region of Tuscany, including the port cities of Pisa and Livorno.

The biggest change, however, lay in the people themselves. Medieval man lived literally at the mercy of religion. Individuals were locked into a rigid system under God, the Church and a strictly stratified society, and could do nothing to improve or change their situation. Instead, the Almighty decided everything – whether to go hungry or be fed, live or die, or ascend to heaven or descend to hell. Increased trade and the subsequent epidemic had changed all this.

The new class of tradesmen, craftsmen and merchants that emerged after the Crusades were proudly conscious of having created their own position and wealth. At the same time, they felt that God had failed when – despite repeated prayers and penances – he'd failed to halt the plague's ravages.

The result was a whole new generation of men and women determined to make the most of life on earth rather than focus on the hereafter. People were fun-loving, enterprising and, above all, curious to investigate and explore the world that the

Church, Pope and plague had shrouded in darkness until now.

With Boccaccio, Petrarch and Botticelli, they celebrated life, joy and desire, while creating a new society. The Middle Ages were discarded. Instead, the city-states celebrated ancient Rome and Athens – a golden age of art, architecture and statesmen.

The medieval church had rejected antiquity because it was pagan, but ruins and traces of past glory were everywhere – mighty squares, the remains of public buildings and the sprawling networks of roads and aqueducts were all reminders of a glorious past.

50 per cent of Florence's inhabitants were employed by the Medici family.

ANTIQUITY LED THE WAY

With the Dark Ages banished, Italians set about the task of recreating the New World in the image of the ancients. Long-forgotten scientific writings by ancient Greek authors such as Euclid (c 300 BC), the astronomer

Ptolemy (c AD 100-170) and the philosopher Aristotle (384-322 BC) were now revived and much discussed. That they'd survived at all was partly thanks to Arab conquerors in the Middle East who, having discovered the ancient writings in churches and monasteries, decided to preserve them for posterity.

Cities were remodelled along ancient lines. After the plague, the city councils of northern Italian cities had had enough of their narrow, unhygienic streets. Light and air were now needed in the cityscape. Ideally, there should also be room for commerce, which continued to thrive.

Florence's ruling *signoria* council, for example, recommended the widening of *Via*



POLITICS: In *The Prince*, Machiavelli described in sobering terms how one should govern – not to be as pious as possible, but to seize and hold onto power.



SCIENCE: Leonardo da Vinci, the artist of the millennium, challenged the Church's view of the body as a mere vessel for the immortal soul. He even broke the religious taboo against autopsies to study and describe the human body as if it were a machine.

“Diligence, character and public spirit now came into focus in place of piety”

Larga (Broad Street): “For the greater adornment of the city and its access roads and, in particular, to ease the journey to the Loggia di Orsanmichele ... it is desired that the new road shall be drawn and constructed as straight and as wide as possible.”

Again, God had to take a back seat. Whereas churches had previously occupied pride of place in cities – usually at the highest point – the city's best and most visible plots now went to the public buildings and palaces of wealth that continued to spring up in Florence and its fellow northern Italian cities.

At the same time, this increased focus on the secular led to new idols, and merchants, bankers and other enterprising and wealthy men were now established as spiritual role models. Whereas faith had previously been the most important and decisive virtue, independence, diligence, strength of character and public spirit now came into focus ahead of piety. The wealthy could demonstrate these qualities through funding magnificent buildings and works of art for the benefit of everyone in the city.

Great families vied to find the greatest artists of the time and serve as patrons,

commissioning works from them. This allowed great talents such as Michelangelo and Leonardo da Vinci to flourish, creating works of art such as the *Mona Lisa* and the statue of *David*.

Of these families, the most famous was the Medici banking family. The Medici dominated Florence for over a century, both as its foremost family and as uncrowned kings, funding numerous works of art and supporting artists including Michelangelo, who lodged with Lorenzo de' Medici for around five years.

CATHEDRAL GOT A GIGANTIC DOME
Florence's newly confident citizens were literally reaching for the sky. When the city

needed a new cathedral in the 13th century, the authorities commissioned a building constructed in the usual medieval round-arched style. After the plague, however, it was ready for a new approach.

The eminent architect Filippo Brunelleschi was commissioned to build a dome in the style of the Pantheon of Ancient Rome. Construction took 14 years – from 1420 to 1434 – and the result surpassed anything the people of Florence could have imagined. The immense dome of Santa Maria del Fiore stretched some 100 metres into the air and, with its 40-metre span, was the size of the Pantheon – the largest in the world at the time. Unlike in the Middle Ages, when the main purpose of funding church construction was the salvation of souls, donations were now as

OVER IN DENMARK

QUEEN OF THREE KINGDOMS

Aged just 10, Princess Margrete of Denmark married the Norwegian King Haakon VI Magnusson. Her father, Valdemar Atterdag, died 12 years later without a male heir. The Council of State elected Margrete and Haakon's son, six-year-old Olav, as king, with his parents as guardians. Haakon's death five years later left Margrete as de facto ruler of both Denmark and Norway. In 1397, she united all three Nordic countries in the Kalmar Union – with great-nephew Erik on the throne. However, Margrete retained power until her death in 1412.





The Medici family returned to power in 1537 when Cosimo I became Grand Duke – here he is depicted surrounded by artists.

much about earthly pleasure and prestige – a fact openly acknowledged by the banker Cosimo de' Medici.

“All those things have given me the greatest satisfaction and contentment because they are not only for the honour of

almost terrifying sense that the crucifixion was happening before their eyes and that they were in the place of the two spectators.

Renaissance curiosity about life and nature fuelled the scientific revolution that would change the world. These ideas spread beyond Florence and the other city-states in the north to the rest of Europe. Here, too, they would lead to major upheavals – the Reformation, the French Revolution, technical and industrial advances – the whole modern world and free-thinking, independent human beings.

In the late 15th century, with the great plague outbreak of 1348 a distant memory, the philosopher Giovanni Pico della Mirandola (1463-1494) wrote about man's place in a world where God still reigned, but where his earthly creatures increasingly antagonised him:

“I have placed you at the very centre of the world, so that from that vantage point you may with greater ease glance round about you on all that the world contains. We have made you a creature neither of heaven nor of earth, neither mortal nor immortal, in order that you may, as the free and proud shaper of your own being, fashion yourself in the form you may prefer. It will be in your power to descend to the lower, brutish forms of life; you will be able, through your own decision, to rise again to the superior orders whose life is divine.” ■

God but are likewise for my own remembrance,” said the rich man, who also commissioned Donatello's bronze statue of the biblical King David.

BRONZE WAS NUDE

The art of the new age didn't limit itself to religious subjects. Nature and the physical world were also eagerly explored and depicted. In particular, the human body – which had been hidden away during the Middle Ages because of its association with sin – was a favourite subject, and both religious and secular art abounded with naked bodies. Few of the images were explicit in nature – the aim was to celebrate man in all his earthly glory and to depict reality in a tangible and corporeal way.

Even when the subject matter was religious, it took on a sense of physical intimacy. Citizens visiting the church of Santa Maria Novella in 1427 were shocked when they saw the new mural. The painter Masaccio (1401-1428) had rendered Christ on the cross in perspective and provided the image with a frame in which two Florentine citizens were drawn as spectators.

At the time, perspective drawing was a novel concept and gave churchgoers an

EYEWITNESS

LEONARDO BRUNI / 1370-1444, author

IN PRAISE OF FLORENCE



“As you wander through every quarter, you will see splendid piazzas, the decorated porticos of the houses of noble families, and the streets alive with crowds of people. Of the houses built along the river,

some face the riverfront, their walls washed by the waves; others are set further back on the other side of an intervening street, where a busy crowd may gather to engage in business or in pleasure ... [N]or is just this or that street splendid and sparkling, but all of them, in all parts of the city.”

BANKING DYNASTY RULED FOR 100 YEARS

The Medicis came from a poor family of coal traders. But by marrying into money and investing wisely, they became Florence's leading family for three generations.

WIFE'S MONEY GENERATED A FORTUNE

■ Giovanni de' Medici (1360-1429)
 ■ Giovanni's fortune – and that of his heirs – was made when, in 1386, he married the wealthy noblewoman Piccarda Bueri. He invested her money in a banking business, which quickly grew – even the Pope was a client. With money came political influence, and Giovanni was appointed 'Gonfaloniere of Justice', one of the highest offices in the Republic. Giovanni used his power and wealth to promote architecture, art and philosophy among other things. His role as patron gave Giovanni prestige in the city and he also enjoyed popular support. The family had supported the wool workers when they rebelled against



unfair employers in the years after the plague, which at the time led to the exile of several family members.

BANK EXPANDED ACROSS EUROPE

■ Cosimo de' Medici (1389-1464)
 ■ Giovanni's son expanded the family's banking business, opening 19 branches across Europe, including one in Bruges. Politically, too, Cosimo followed his father, but he preferred to pull strings behind the scenes. "Political questions are settled in [Cosimo's] house. The man he chooses holds office... He is who decides peace and war... He is king in all but name," Enea Silvio, later Pope Pius II, reportedly said. Cosimo also continued his father's patronage of art and architecture, and in later years realised that he would rather spend money than earn it. However, he did not completely distance himself from business. His financing



of San Marco monastery's renovations was seen as a form of penance for a series of shady deals.

Accounting ledgers reveal that the Medici Bank invented the double-entry bookkeeping system.

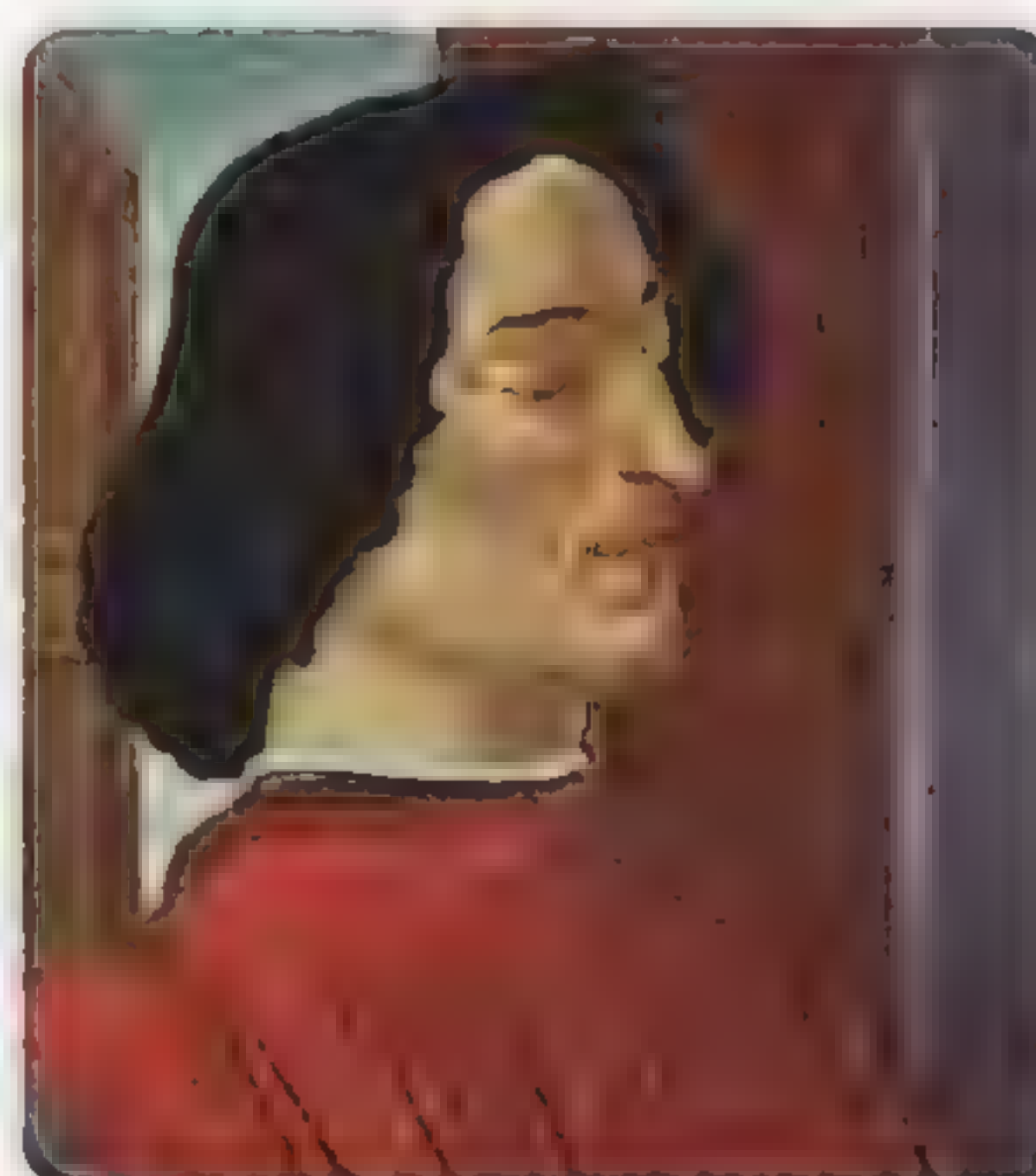


FAMILY HOARDED ALL THE POWER



■ Lorenzo de' Medici (1449-1492)
 ■ Cosimo's grandson took over the family banking business at the age of 20, but money management was not his strong suit. On the other hand, he was a wily politician who changed the constitution to concentrate all power with the Medici family. For example, he forbade other families to fund public festivals, parades and banquets. Lorenzo's tyrannical rule made him many enemies, and in 1478 he was the victim of an assassination attempt that nearly cost him his life.

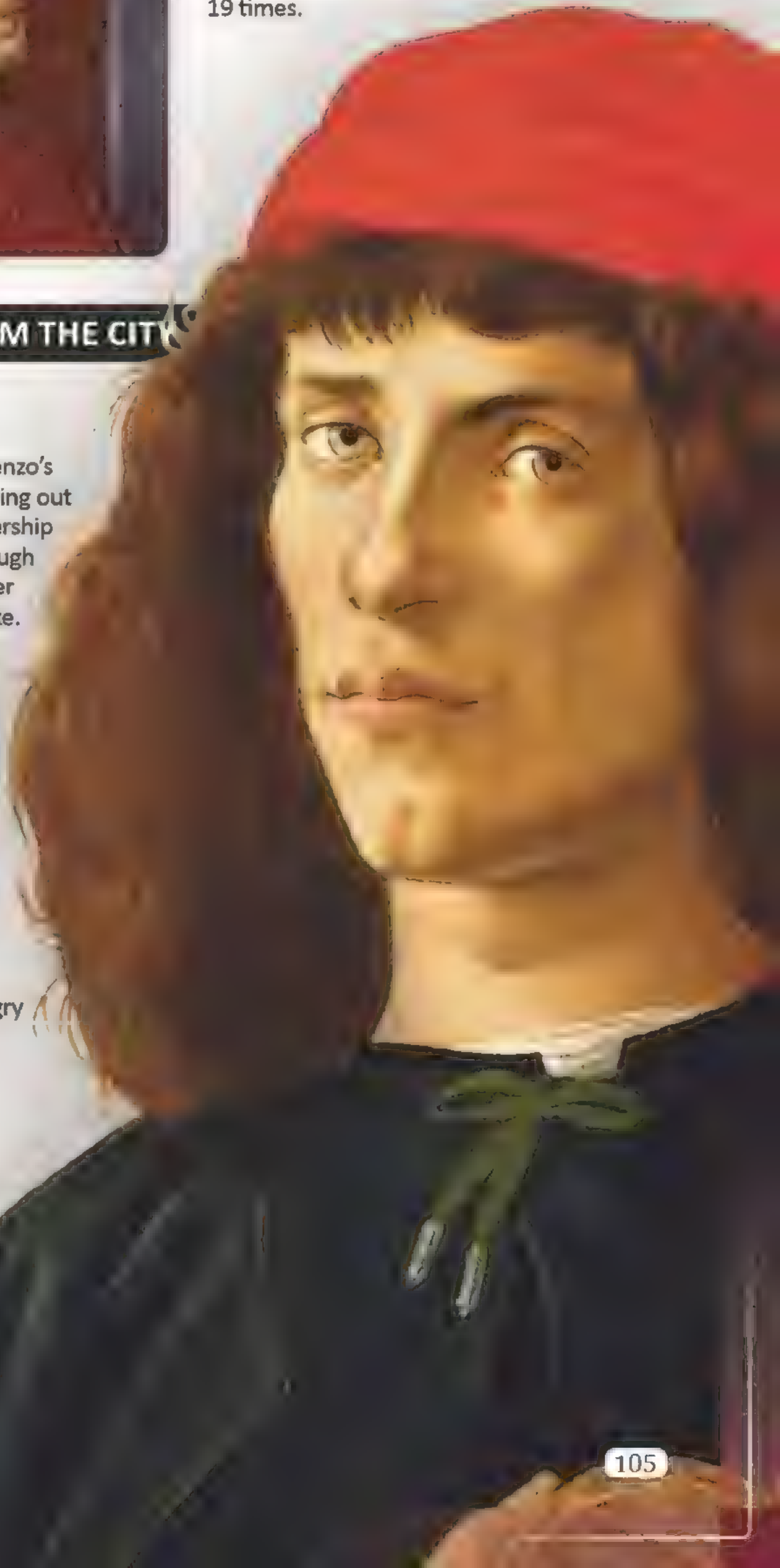
MURDERED FOR HIS BROTHER'S TYRANNY



■ Giuliano de' Medici (1453-1478)
 ■ Lorenzo's brother and co-regent was, like Lorenzo, a keen patron of the arts. During the failed attempt on Lorenzo's life, Giuliano fell victim to a frenzied attack when he was stabbed 19 times.

CHASED FROM THE CITY

■ Piero de' Medici (1472-1503)
 ■ By the time of Lorenzo's death, time was running out for the Medici's leadership in Florence, even though his son Piero took over the role of Grand Duke. This was made abundantly clear when, in 1494, the French King Charles VIII marched into the city without Piero being able to prevent it. Piero was subsequently chased out of the city by Florence's angry citizens.







ON THE PLAGUE'S TRAIL

1894-2010

When the plague broke out in Hong Kong in the 1890s, contemporary scientists seized the opportunity to travel to the hotbed of the disease. They wanted to solve the mystery of the Black Death once and for all. Bacteriologist Alexandre Yersin used bribes to gain access to plague-stricken corpses, which he cut up and analysed in his primitive laboratory. His colleague Paul-Louis Simond captured rats and caged them before studying how the infection spread from animal to animal. But it was only in 2010 that scientists were able to declare the mystery of the plague solved.

1894-2010

1894 Scientist
Alexandre
Yersin discovers
the plague
bacterium.

1897
Waldemar
Haffkine
develops
vaccine.



1898 French-
Swiss scientist
Paul-Louis
Simond arrives
in India.

1910 Plague
ravages the
Chinese
region of
Manchuria.

2010 Researchers
confirm that
medieval and
modern plagues
are the same.

1894 1897 1898 1910 2010

Bacteriologist Alexandre Yersin's eyes were glued to the microscope. In a thatched hut outside a missionary hospital in Hong Kong, the Swiss-born French physician had been working for days examining the bodies of the victims of the plague that raged through the city's streets. With a curiosity that trumped fear, he'd opened the coffins and brushed away the slaked lime that had been poured over the corpses to hasten decomposition. He then removed the lymph nodes from each body and injected extracts from these infected organs into mice and guinea pigs. The scientist wanted to test whether bacteria from the corpses could make the animals sick, and then study its effects on the animals. Yersin's goal was to find the cause of the disease that had killed between a third and half of Europe's population in the Middle Ages.

The outbreaks of plague in Hong Kong appeared in early 1894 in the densely populated Tai Ping Shan district. By July, the disease had killed 2,442 people. The outbreak was a disaster for the port city, which in those years was developing into a major trading hub between China and the West. The dreaded disease threatened to scare away merchants.

For scientists like the 30-year-old Swiss bacteriologist, however, the outbreak offered a unique opportunity to study the dreaded disease. Unlike medieval scientists, Yersin had all the miracles of modern technology at his disposal: microscopes, knowledge of vaccines and methods to clean instruments of bacteria. Few were better equipped for

the task than the physician. After studying medicine in Switzerland, Germany and France and securing a post at the prestigious Pasteur Institute in Paris, Yersin was one of the new era's scientific elite. The relatively young scientist had already helped develop a vaccine against rabies and made major advances in diphtheria research.

BODIES OBTAINED WITH BRIBES

When news of the plague outbreak in Hong Kong reached Europe, the Pasteur Institute immediately dispatched Yersin. The city had been taken over by the British in 1841, and the British doctor in charge of managing the catastrophe was highly sceptical of the young Frenchman, who arrived with all his laboratory equipment like a one-man army.

In fact, someone else with the same aim had already beaten Yersin to the punch. Japanese bacteriologist Kitasato Shibasaburo was a graduate of Tokyo's Imperial University, but soon began working for the eminent physician Robert Koch – famous for discovering and isolating the tuberculosis bacterium. Along with Koch and his research team, Kitasato helped develop a vaccine against tetanus. He later co-founded the Japanese Institute for Study of Infectious Diseases, which sent him to Hong Kong in 1894 to study the plague.

As the first foreign doctor to arrive in Hong Kong, Kitasato received a warm welcome and all the help he needed. The doctors at Kennedy Town Hospital were already providing a regular supply of bodies of plague victims for his studies.

Yersin was not so lucky. The Swiss-French scientist was denied access to both the laboratory and the corpses that were crucial

The outbreak
in Asia in the
1800s, known as
the third
pandemic, killed
millions of people.



A Paris newspaper described how Chinese authorities stopped refugees from plague-stricken Manchuria at the Great Wall of China.

to his research. However, a sympathetic doctor at the hospital allowed him to stay in a thatched hut on the hospital grounds, and here Yersin embarked on his own investigations into the victims of the plague. He obtained the bodies by bribing sailors who'd been hired to bury the dead.

In 1894, when he put his eye to the microscope to study the laboratory animals that had been infected with bacteria from the plague corpses, he made his first groundbreaking discovery. Through his instrument, he observed "a real mass of bacilli" that looked exactly like the bacteria from the plague-infected corpses: "They are very small rods, thick with rounded ends and lightly coloured." Yersin was convinced that he had observed the plague bacterium: "For me there is no doubt," he wrote.

When the bacteriologist shared his discoveries with British doctors, he suddenly had access to all the plague bacteria he needed to confirm his research, and in September 1894 he was able to declare the mystery of the plague solved in a scientific paper. Yersin named the bacterium *Bacterium pestis*.

While Yersin was honoured for his discovery, his Japanese rival Kitasato was



ALEXANDRE YERSIN 1863-1943

DISCOVERER OF THE PLAGUE BACTERIUM

■ Swiss-born Alexandre Yersin was brought up as a Calvinist in a strict religious home, but rejected all forms of faith. His passion was the natural sciences. As a boy, he avidly studied insects and plants; during his studies, he became interested in anatomy and disease. When Yersin moved to Paris in 1885, he eventually found work at the famous Pasteur Institute. However, the outbreak of the plague in Hong Kong led Yersin to

Asia, where – after discovering the plague bacterium – he continued his research. Among other efforts, he tried to develop a vaccine against plague, but was unsuccessful. In Indochina – now including Vietnam – the tireless bacteriologist settled in Hanoi as head of a medical school. Yersin, who remained in Indochina until his death, resumed his old interest in botany and pioneered the planting of rubber trees from Brazil.

Researcher in diseases – Identified the plague bacterium – Helped develop an antidote for rabies

left disappointed. A few days before Yersin made his discovery, he had studied similar bacteria under his microscope, but his results hadn't been clear and Kitasato was hesitant to publicise his discovery. The Japanese scientist would later become famous for isolating the bacterium that causes dysentery. But his delay over the microscope that day in Hong Kong forever robbed him of the honour of having first uncovered the plague bacterium.

CAT FLEAS REVEALED INFECTION

The symptoms of the Hong Kong plague outbreak – high fever, exhaustion, inflamed boils, black marks under the skin and rapid death – convinced Yersin that the bacterium he'd found in the corpses was identical to the one that had killed millions of Europeans in the Middle Ages.

How the plague bacterium was transmitted, however, was a question the tenacious Yersin couldn't answer. Many

“ Every plague outbreak was heralded by a massive rat die-off ”

scientists believed that rats carried the disease, because every plague outbreak was heralded by a massive rat die-off. The carcasses of the small rodents floated in gutters and streams or piled up in the corners of houses. But how the plague bacteria transmitted from animals to humans remained a mystery.

However, Frenchman Paul-Louis Simond, a former naval doctor and now,

like Yersin, a member of the Pasteur Institute, was on the trail. In 1898 – four years after Yersin's discovery – Simond was posted to Jurrachee in India (now Karachi in Pakistan), to combat the plague with a newly discovered vaccine. He'd noticed that the first sign of the disease was often a small fluid-filled blister on the victim's skin. By taking samples of the bacteria in the blister and examining them under a

US scientists dissecting rats during a plague outbreak in New Orleans in 1914. The city brought the disease under control by trapping rats.



TECHNOLOGY

CULTURE.....

ECONOMY.....

DAILY LIFE...



Tomb revealed vampire skeleton

During excavations of mass graves at the Italian quarantine station of Lazzaretto Nuovo, near Venice, archaeologists came across a remarkable skeleton among the bodies.

The deceased was a medieval woman who had

been buried with a brick wedged between her jaws. This technique was used by the Italians to prevent people suspected of being vampires from spreading the plague from victim to victim when they went on their nocturnal hunts.

microscope, Simond realised that it contained a high concentration of plague bacteria. The small blisters reminded Simond of a flea bite, and he reasoned that the black rat's fleas carried the plague. When the rats died, the tiny insects migrated to humans, who became infected when the fleas bit them.

Simond's colleagues were sceptical, but he himself was confident – not least after he conducted an experiment with rats and fleas while staying at a primitive hotel in Jurrachee in the summer of 1898. Simond had caught a rat and brought it back to the hotel, where he isolated it in a cage in a jar-shaped glass container. The rat had fleas in its fur, but to get more fleas to join the experiment, Simond had also lured the hotel cat and caught some of its fleas, which he fed to the rat. A day later, the rodent showed all the signs of being terminally ill with the plague. Simond now put a healthy rat – captured long ago and kept in isolation – into a cage raised above the sick

rat in the glass container. The two animals were physically separated, but the fleas had free passage. The following morning, the sick rat lay dead, and six days later the other also expired. An autopsy revealed that the initially healthy rat had died of plague. As the two animals had not been in direct physical contact, the source of infection had to be the fleas.

"That day, 2nd June 1898, I felt an emotion that was inexpressible in the face of the thought that I had uncovered a secret that had tortured man since the appearance of the plague in the world," noted an elated Simond.

The scientist's conclusion was confirmed in 1906 by a commission set up by several European countries horrified by the plague outbreaks in China and India. Despite millions of deaths, the epidemic in Asia never reached the catastrophic proportions

of the medieval Black Death, and many began to question whether the outbreaks were the same disease at all. This question would dominate research into the disease for most of the 20th century.

EXPERT LED ASTRAY

Historian Francis Aidan Gasquet marvelled at differences in symptoms, while bacteriologist John Findlay Drew Shrewsbury noted the striking difference in death rates. While up to half of Europe's medieval population died from the plague, the modern plague in Asia killed at most five per cent. Shrewsbury also rejected the idea that a series of outbreaks in Britain in the 16th and 17th centuries could have been the plague. They occurred in winter, and plague bacteria required warm temperatures to develop. The disease that ravaged England must have been typhus and not plague, Shrewsbury concluded.

Another apparent nail in the coffin of Yersin's theory was delivered in 1980 by a young student in a lesson with zoologist

Graham Twigg in London.

Twigg's knowledge of history was limited, but he was an expert on rats, especially the black rats that had been blamed for the plague in 19th- and 20th-century Asia.

How could the Black Death have struck Britain so hard if the black rat had been the carrier, the student asked. After all, the

rat thrived mainly in the subtropics and not at all in northern parts of Europe. Twigg spent four years answering the question before publishing his findings in 1985, which concluded that the modern plague in Hong Kong and the medieval Black Death were different diseases. The reason, as the student

On 20th

January 1900, Honolulu burned most of its plague-afflicted China Town district.



FIELDWORK: French bacteriologist Paul-Louis Simond arrived in Bombay, India, in 1898 to study and combat the plague that had recently killed over 30,000 people in the area.



THE EXPERIMENT: Simond's test with one sick and one healthy rat proved that the animal's fleas spread the infection.



THE CURE: Simond vaccinated the inhabitants against plague. The vaccine was developed in 1897.

had pointed out, was that the plague was spread by black rats, which did not live in northern Europe.

VIRUS CAME UNDER SUSPICION

Twigg's work left more questions than answers, and in the decades that followed, one new theory of plague after another was put forward. In 2000, zoologist Christopher Duncan and demographer Susan Scott argued that the medieval plague was in fact an Ebola-like haemorrhagic disease – a malignant viral illness that causes high fever and massive, often fatal internal bleeding. The two researchers later added that the genes that make humans immune to Ebola are more common in Europe, suggesting that this part of the world had already suffered a violent attack by a similar virus.

However, the scientific community never completely abandoned Yersin's theory that the modern plague was indeed the same as the medieval one, and in 2000, French microbiologists Michel Drancourt and Didier Rauplt set out to test the theory using the latest techniques. The researchers selected

“The researchers extracted some of the teeth of the dead”

three medieval plague graves – one in Vienna, one in Martigues in south-eastern France and one in Marseille – to study.

The bodies in the mass graves had been hastily buried during the plague and were piled up one on top of the other. Carefully, the researchers extracted some of the teeth of the dead and took them back to the laboratory. Here the teeth were carefully washed and cut lengthwise so that the researchers could access the innermost material suitable for analysing the victims' DNA. When they published their results in 2007, they concluded that they had found the DNA of the plague bacterium in the teeth of the corpses.

“We believe that we can end the controversy: Medieval Black Death was plague,” they wrote, vindicating Yersin and Simond more than a century later. Several of the researchers'

colleagues later criticised the DNA tests for being too unreliable. Among other things, they pointed out that it was not certain that all the bodies analysed had been victims of the Black Death.

MEDIEVAL CLIMATE CAUSED CONFUSION

It was only in October 2010 that an international team of researchers was able to dispel doubts and establish that the Black Death was the same plague that Alexandre Yersin experienced in Asia in the 1890s. This time, evidence came from five plague graves in Britain, Germany, the Netherlands, Italy and France. Researchers had spent several years uncovering the graves and analysing DNA from the bones of the dead. In all the bones of the corpses, the researchers found DNA from one specific bacterium: Yersin's plague bacterium, which had been renamed *Yersinia pestis* after its discoverer.

“[O]ur data from widely distributed mass plague pits ends the debate about the etiology of

The black rat's fleas spread the plague, according to scientists.



➤ the Black Death, and unambiguously demonstrates that *Y. pestis* was the causative agent of the epidemic plague that devastated Europe during the Middle Ages," the researchers wrote triumphantly.

The scientific problem of the plague occurring at different times of the year in the Middle Ages was explained by the highly unusual weather patterns of the 14th century. The inhabitants of the century were plagued by cold spells that led to it being called the Little Ice Age. Glaciers in Switzerland swallowed whole villages, people skated on the Thames and polar bears roamed the Orkney Islands. In the 1340s, when the plague struck, people experienced summers that were alternately extremely dry or rainy. Winters were either bitterly cold or surprisingly warm. The shifts in weather

meant that the deadly disease kept insidiously changing shape: in summer, bubonic plague thrived, while the cold of winter caused pneumonic plague to flourish.

As for the claim that the black rat could not have spread the infection in northern Europe, a historian in 2003 found that the animal thrived everywhere in medieval Europe. It was only when the Black Death wiped out large parts of the population and cities became less densely populated that the rat population dwindled dramatically, and humans and rats no longer came into contact with each other as often.

However, the latest research also raises new questions, not least about the pathways of the contagion through Europe. Historians had previously assumed that the plague, as described by the Italian jurist Gabriele de' Mussi, originated in China and spread through the Black Sea region, where traders from Europe and Asia met, and from there to Italy. In the 1340s, in the port town of Kaffa on the Crimean peninsula in the Black Sea, Italian traders were attacked by the Tatar people. During the siege, the Tatars suddenly succumbed to a deadly disease that killed thousands of warriors every day. Instead of retreating, the Tatars used the bodies of the sick as weapons by catapulting them over the city walls, and inside Kaffa, the Italians soon dropped like flies. The survivors fled to the Sicilian city of Messina, from where the plague spread to the rest of Europe. But this account of the plague's route turned out not to be the entire story.

In plague graves near the Dutch city of Bergen op Zoom, researchers found plague bacteria that were markedly different from bacteria from other graves. The Dutch discovery suggested that the plague came to Europe by at least two routes and spread in different directions. One route probably went from the Italian cities to the north, as Gabriele de' Mussi reported. But another may have come from the north through Scandinavia or the German Hanseatic cities, with whom the Dutch traded.

However, the full truth about this northern route of transmission remains a mystery that scientists are still trying to unravel. ■

In 2010, DNA from plague-stricken bodies in medieval mass graves convinced scientists that the Black Death was the same disease as modern plague despite recent arguments to the contrary.



Excavations on an island off Venice, used as a quarantine station in the Middle Ages, revealed graves containing more than 1,500 plague victims.



THE PLAGUE NEVER WENT AWAY

Plague outbreaks continued long after the Middle Ages. To this day, people across the world are affected by the disease.

1850

The province of Yunnan in southern China is hit by bubonic plague in the 1850s. Refugee flows following a rebellion in the area spread the disease southwards to India and elsewhere.

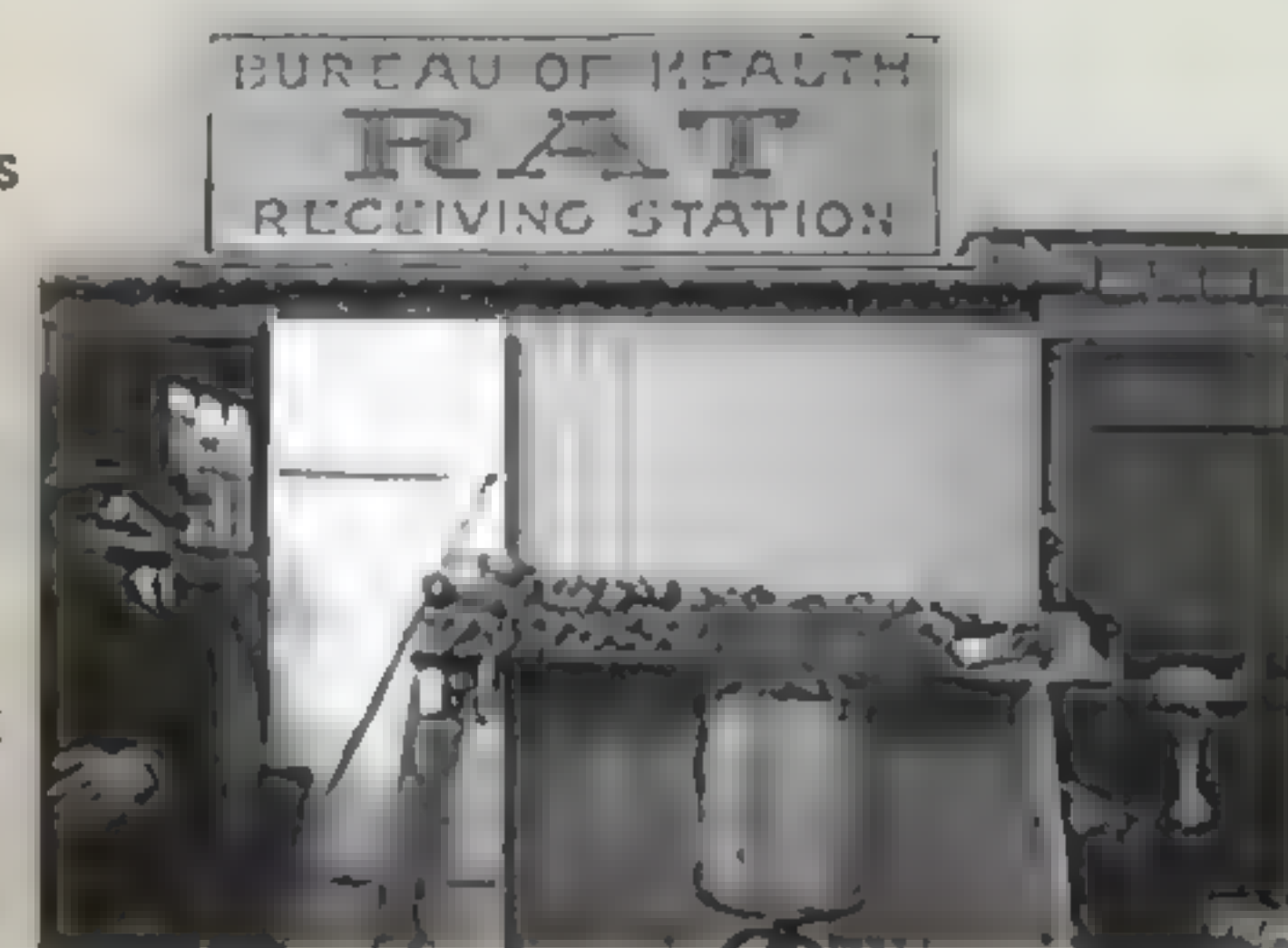
1894

The outbreak of plague in Hong Kong's densely populated Tai Ping Shan district causes panic throughout the city, a bustling commercial hub. The disease rages for five months and claims thousands of lives.



1900

In order not to tarnish the state's reputation, California's governor spends two years denying that plague has struck San Francisco's China Town. As a result, 113 of the 121 afflicted by the plague die.



**1910**

Millions lose their lives as the plague continues to ravage China, where cramped living conditions allow infections to easily spread. Manchuria is affected the worst.

1994

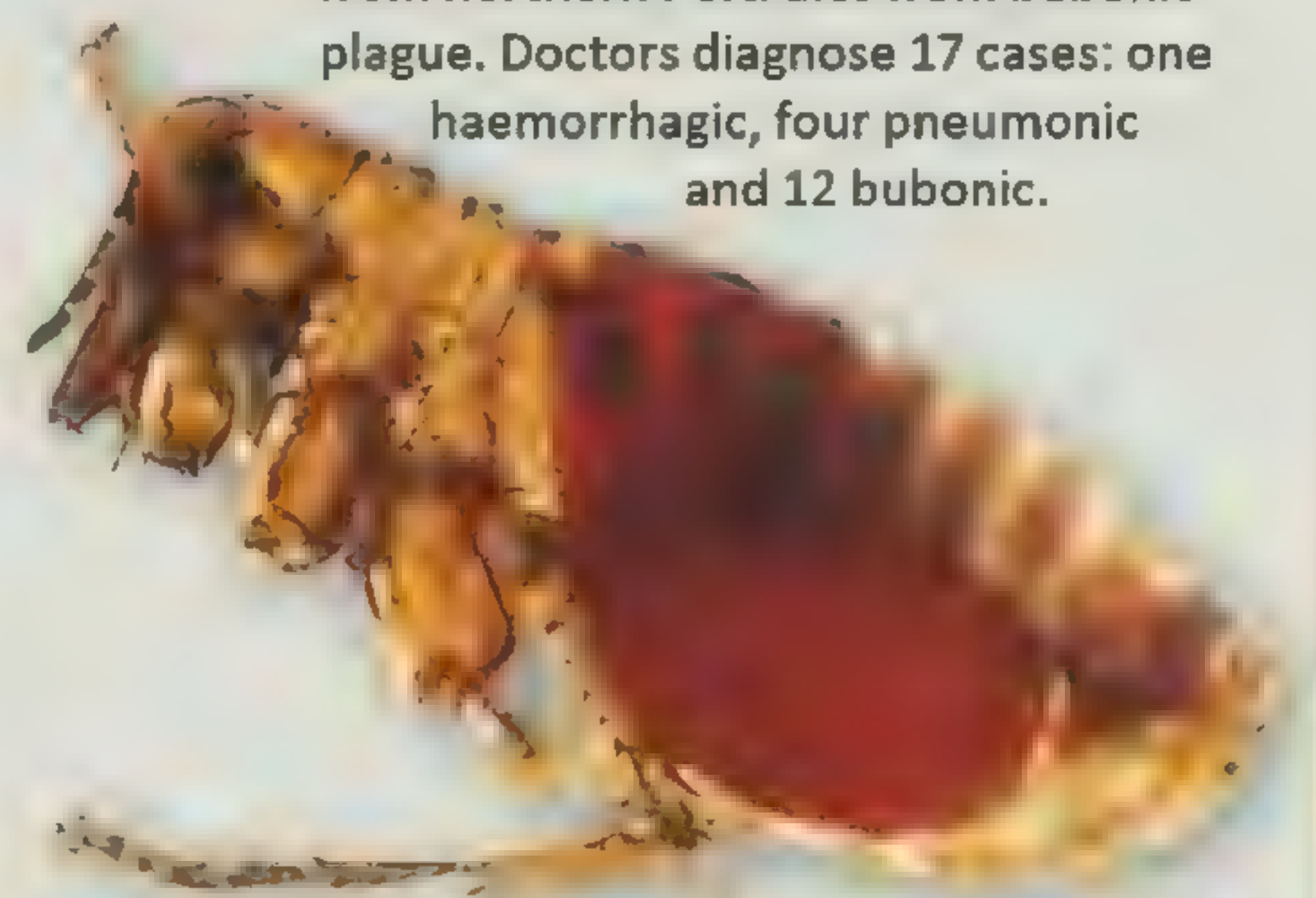
The first cases of plague outbreak in the Indian city of Surat cause widespread panic. As many as 300,000 people flee, taking the disease with them to other areas. Fifty-two die.

**1995**

Four US states – New Mexico, California, Arizona and Oregon – are afflicted by plague. Of the seven cases reported, five suffer from bubonic plague, one from haemorrhagic plague and one from pneumonic plague. The latter patient dies.

2010

On 26th July 2010, a 14-year-old boy from northern Peru dies from bubonic plague. Doctors diagnose 17 cases: one haemorrhagic, four pneumonic and 12 bubonic.



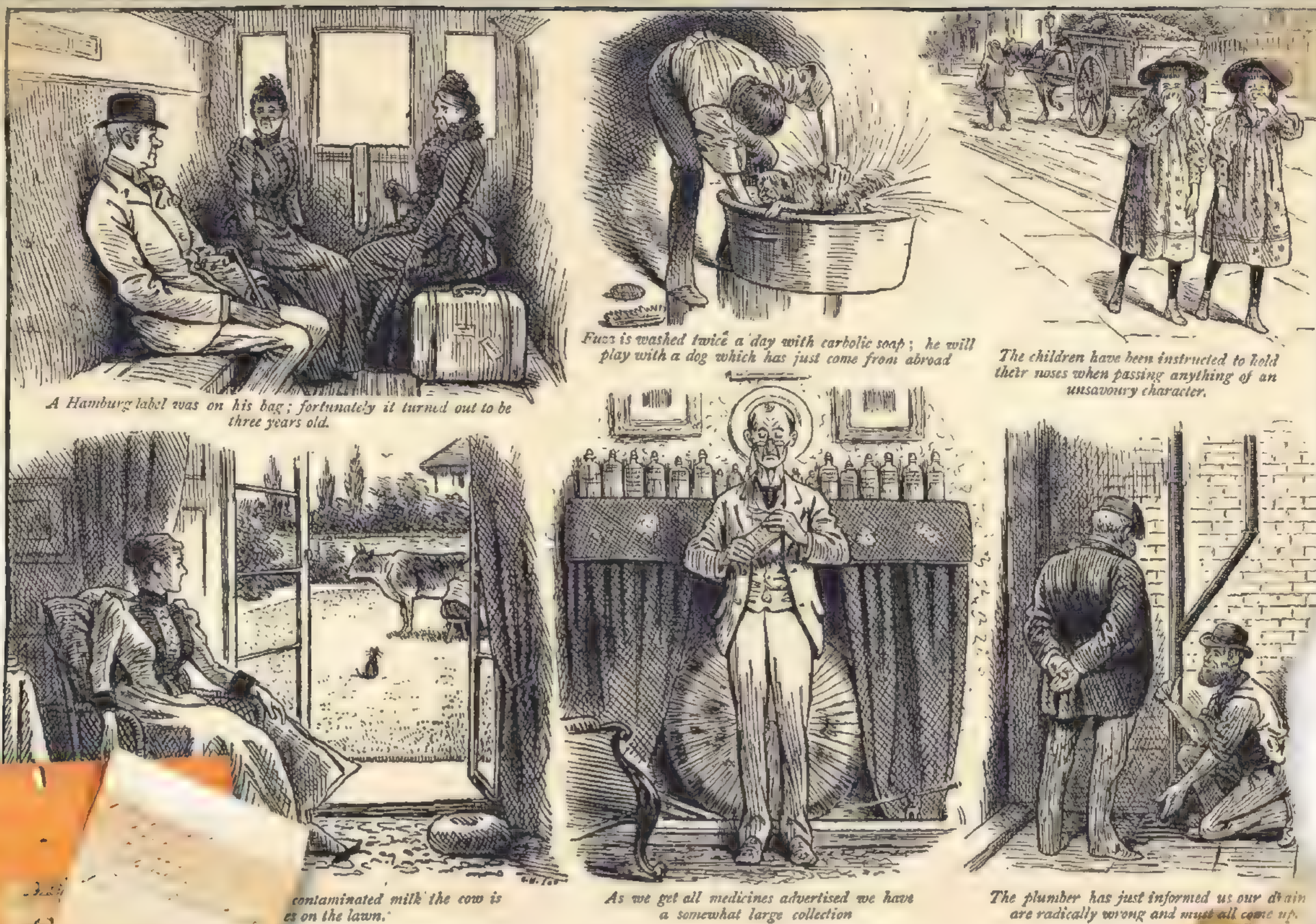


DEATH KEPT COMING BACK

The Black Death is by no means the only epidemic that has left millions of people dead. In the 19th century, cholera triggered panic in Europe's major cities. In the aftermath of the horrors of World War I, the Spanish flu killed at least 25 million people worldwide. And even today, more than half a million people in the tropics die annually from malaria – a disease that has plagued mankind for millennia.



Prevention:
When cholera epidemics hit Europe in the 19th century, people were encouraged to avoid visitors from cholera-affected cities – and to scrub their dogs clean daily, too.



A Hamburg label was on his bag; fortunately it turned out to be three years old.

Fuzz is washed twice a day with carbolic soap; he will play with a dog which has just come from abroad

The children have been instructed to hold their noses when passing anything of an unsavoury character.

contaminated milk the cow is on the lawn.

As we get all medicines advertised we have a somewhat large collection

The plumber has just informed us our drain are radically wrong and must all come up.

THE CHOLERA SCARE: PREVENTION IS BETTER THAN CURE

Medicine:
In the 19th century, doctors treated cholera with drugs such as opium, which effectively relieved patients' pain.

NOTICE. PREVENTIVES OF CHOLERA!

Published by order of the Sanitary Committee, under the sanction of the Medical Council.

BE TEMPERATE IN EATING & DRINKING!
Avoid Raw Vegetables and Unripe Fruit!
Abstain from COLD WATER, when heated, and above all from Ardent Spirits, and if habit have rendered them indispensable, take much less than usual.

Good advice:
Authorities encouraged people to abstain from strong alcohol to stay healthy – if they could. Otherwise, try to cut back.



CONTAGION Pictorials warned of infection from fruit, vegetables and meat infected with the bacterium...

...just as the filth on the streets of London was – rightly – blamed for the spread of the disease...

...so too was the drinking water in this US drawing of Death with the poor.



The bacterium: The small rod-shaped bacterium *Vibrio cholerae* can cause its victims to expel 20 litres of diarrhoea per day and die from dehydration. With proper treatment, however, 99 percent can be saved.

CHOLERA

■ In 1817, the cholera bacterium first spread from its home in Bengal to the rest of the world. Since then, a total of seven cholera pandemics have killed millions. The unhygienic and overcrowded European cities of the 19th century were hotbeds for the tiny bacterium, which spreads mainly through water contaminated with faeces. Today, the disease mostly affects countries where the poorest don't have access to clean water.

The discoverer:
German physician
Robert Koch (seated)
discovered the cholera
bacterium in 1883. His
work is still considered
among the most
important ever
in microbiology.

Carriers: UN troops from Nepal probably brought cholera to Haiti after an earthquake in 2010. Over 6,500 died from the disease in one year.

Kongl. Maj:ts och Rikets
Commerce Collegii
F u n g ö r e l s e,
i anledning af Sabelrans utbrott i Antwerpen:
Givna i Stockholm den 6 Mars 1793.

[illegible]

GABR. POPPIUS

Royal alert:
In 1830, cholera reached Europe
for the first time. In 1833, the
Swedish king warned of the risk
of infection from Belgian ships.



Progression: The disease often settled on the lungs, and when it did, victims could suffocate in their own phlegm within a few days. For the lucky ones who survived, recovery could take more than a month.

Macabre:

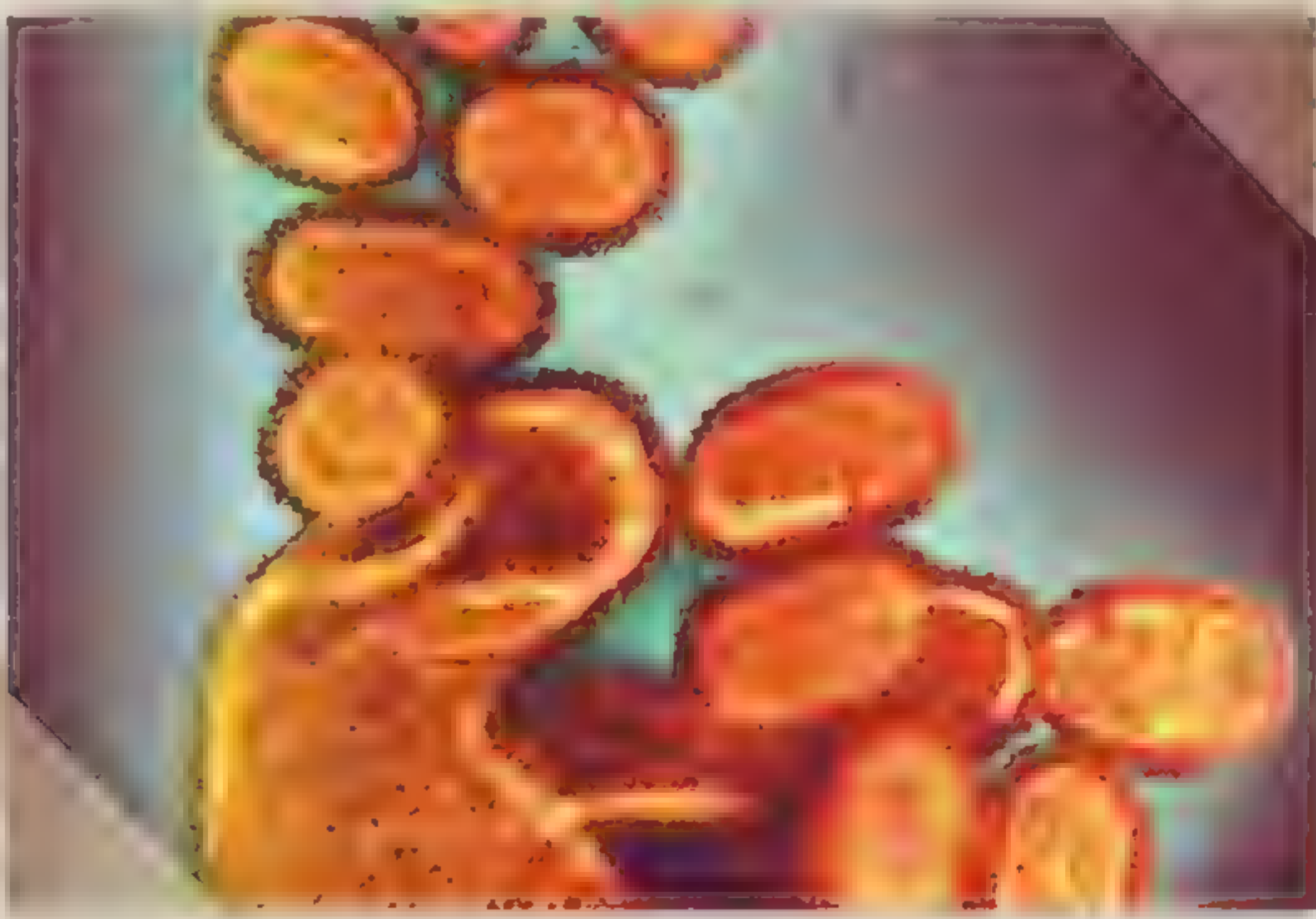
A US record of flu patients at a hospital in South Beach, Washington state, clearly shows how deadly the disease was.



Masks: "Better be ridiculous than dead" was the slogan adopted by this street sweeper.



Wed. Dec. 25-18		
Summerfield, Louis (8459)	1 duty Jan. 2-	X
867711	obv. Flu.	11 A.M.
Ford, Clyde M. (9859)	1 duty Dec. 28-	X
896423	obv. Flu.	3 P.M.
Fuller, Joseph L. (8459)	1 duty Jan. 4-	X
863792	Influenza	4:30 P.M.
Faukald, Ludwig C. (8459)	1 duty Jan. 2-	X
864936	Influenza	4:30 P.M.
Bartlett, Edwin J. (8459)	1 duty Jan. 2-	X
867173	Influenza	4:30 P.M.
Thursday Dec. 26-18		
Shiffin, Jake (8359)	1 duty Dec. 29-	X
866415	obv. Flu.	3 P.M.
Barroll, Otis M. (8099)	1 duty Jan. 7-	X
869661	Influenza	5:30 P.M.
Page, Clarence B. (8099)	1 duty Jan. 2-	X
864852	Influenza	5:30 P.M.
Winters, Albert (8099)	1 duty Jan. 2-	X
864850	Influenza	5:30 P.M.
Warren, Warren (8099)	1 duty Jan. 7-	X
869671	Influenza	5:30 P.M.
Williams, Wm. H. (8099)	1 duty Jan. 3-	X
864851	Influenza	5:30 P.M.
864852	Influenza	5:30 P.M.
Friday Dec. 27-18		
Hartman, Julius E. (8099)	1 duty Jan. 6-	X
867277	Influenza	5:30 P.M.
Bauman, John (8099)	1 duty Dec. 31-	X
867277	Influenza	5:30 P.M.
Allemand, Fred (8099)	1 duty Jan. 1-19-	X
867277	Influenza	5:30 P.M.
Jensen, John (8159)	1 duty Jan. 2-	X
869411	Influenza	6 P.M.
Rhude, Henry (8459)	1 duty Jan. 4-	X
865436	Influenza	6:30 P.M.
Friday Dec. 27-18		
Fewell, Ernest (8099)	1 duty Jan. 1-19-	X
878059	obv. Flu.	11:30 A.M.
Stiglmay, Roy C. (8459)	1 duty Jan. 2-	X
867740	Influenza	4 P.M.
Stiglmay, Roy C. (8459)	1 duty Jan. 2-	X
867740	Influenza	4 P.M.
Friel, John W. (8359)	1 duty Jan. 2-	X
864839	Influenza	5 P.M.
Griffey, Ellis (8459)	1 duty Jan. 2-	X
866494	Influenza	5 P.M.
MacCormy, Joe (8459)	1 duty Jan. 4-	X
865404	Influenza	6:30 P.M.
Bennett, Bernard (8459)	1 duty Jan. 6-	X
869153	Influenza	6:30 P.M.



Virus: Unlike plague and cholera, the Spanish flu was caused by a virus, a particularly deadly variant of influenza A (H1N1). The same virus in another variant, known as swine flu, caused panic in 2009.



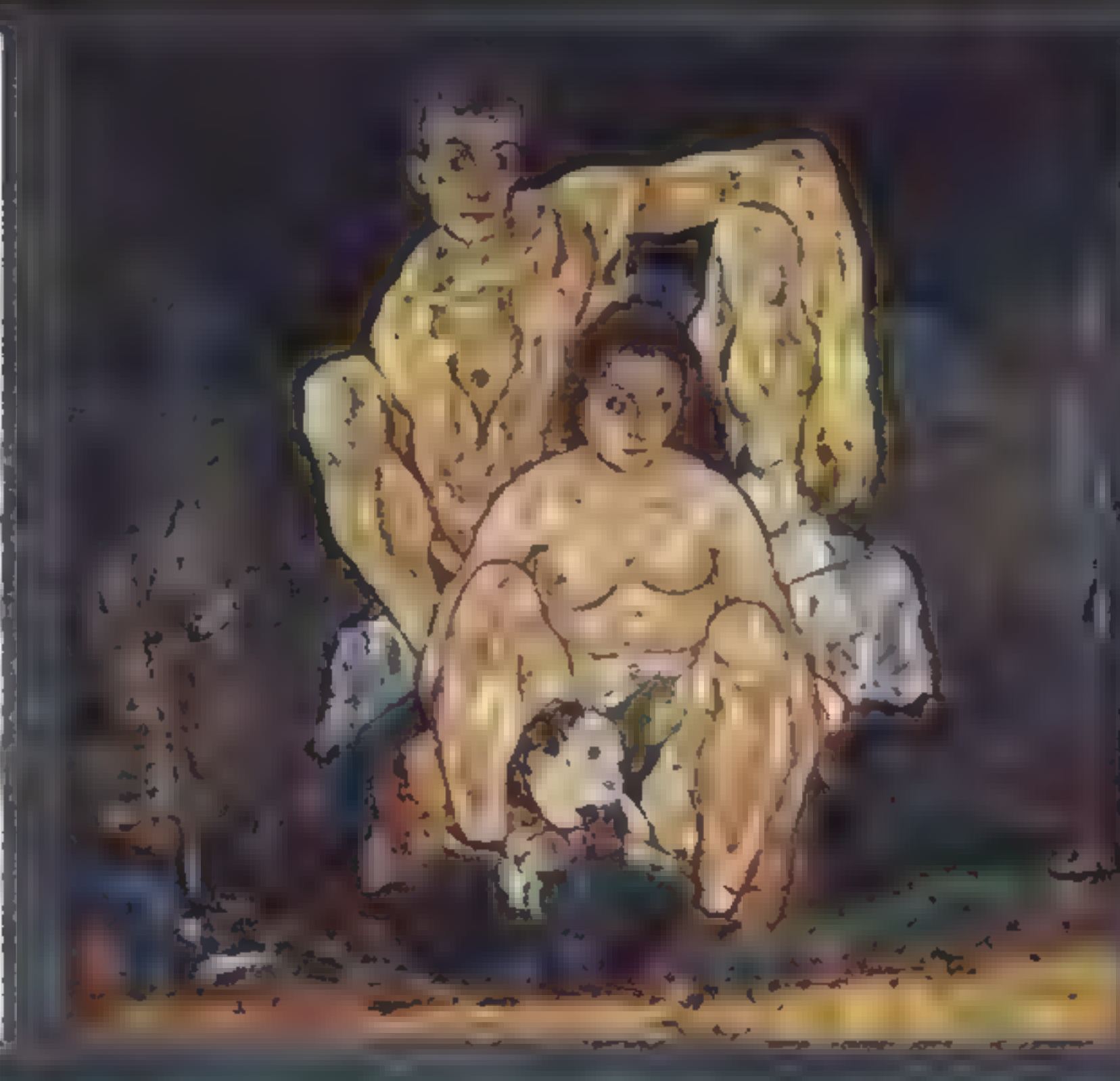
The threat: Unlike common types of flu, the Spanish flu mainly affected young people, so these Japanese schoolgirls had good reason to protect themselves.

THE SPANISH FLU

■ In 1918, US soldiers arrived in Europe to deliver the decisive blow to the Germans in World War I. But they also brought with them arguably one of the deadliest pandemics of all time – the Spanish flu, so called because only the authorities in Spain initially dared to admit how deadly the disease was.



Research: Lung tissue samples from victims of the Spanish flu now allow scientists to study the virus.



VICTIMS Because the disease targeted younger people, many celebrities died in their prime, including the inventor of the paddleboard, George Freeth...

...and the Austrian painter Egon Schiele, who painted *The Family* just before his death...

...as well as the first British pilot to complete an aerobatic loop – BC Hucks – who died in 1918.

The conqueror:
Alexander the Great
conquered most of
the ancient world,
but he was unable
to defeat malaria.
The parasite
was probably
responsible for his
death in 323 BC.



Poison: The carcinogenic Aldrin was sprayed for
years to kill malaria-carrying mosquitoes.

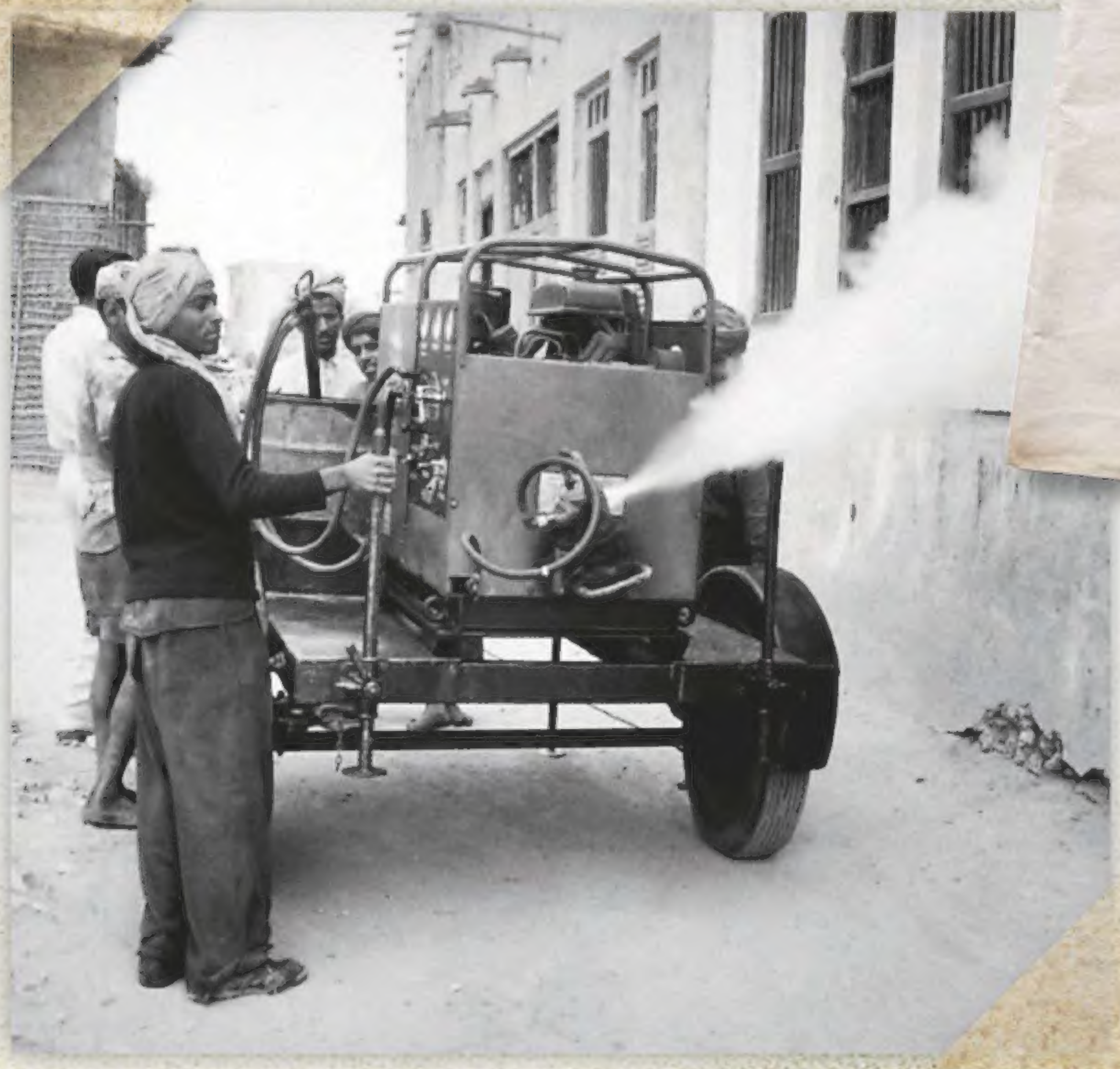


Symptom: Malaria can lead to a
greatly enlarged spleen.



Source of infection: Malaria is caused by *Plasmodium* parasites that infect the blood through the bites of malaria-carrying mosquitoes.

Poison mist: Malaria-carrying mosquitoes were controlled for decades with the insecticide DDT, but mosquitoes became resistant and today the environmentally hazardous poison is banned in many places.



MALARIA

■ South of Ancient Rome, the deadly disease lurked in the mosquito-infested Pontine Marshes. In the Middle Ages it killed the poet Dante Alighieri and several popes, and even today an African child dies every minute from malaria. One of the worst scourges of human history has been with us for millennia, but we still haven't found the means to control it.



Antidote: Quinine was used for a long time against malaria. This led to the invention of gin and tonic, when the British in India mixed the bitter powder with gin and soda water.



SOLDIERS Malaria has often affected armies. The 1st SS Panzer Division was prescribed sontochin against the parasite...



...while in the Pacific, during WWII, malaria often threatened US forces more than the enemy...



...and in Vietnam, US soldiers tried to keep mosquitoes away at night with light traps.

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The plague struck Europe

In October 1347, 12 Italian merchant ships docked at Messina in Sicily. It soon became clear that something was terribly wrong with the crew on board. Just by talking to them, Messina's citizens were infected with a deadly disease. The victims developed large boils and coughed up blood, leaving doctors and priests powerless. The ships were ordered to leave – but it was too late. The disease had come ashore, people were on the run and the plague spread across Europe. Villages, towns and monasteries were left empty, and in three years more than a third of the European population died. It led to a shifting balance of power as a new society emerged from the ruins.

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